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321X1E/G(U) AIR FORCE OCCUPATIONAL MEASUREMENT CENTER
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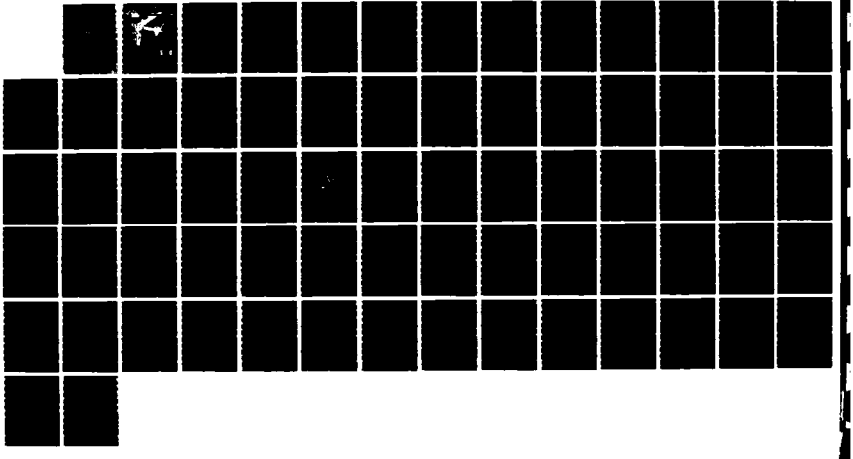

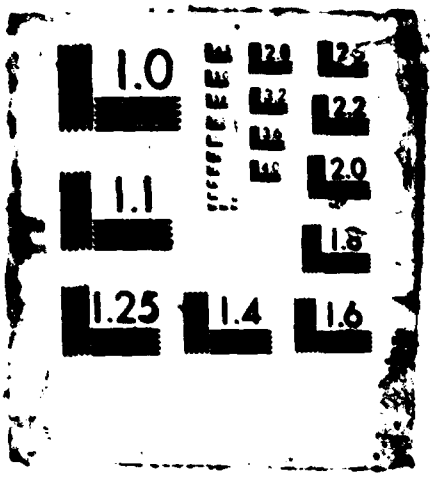
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UNITED STATES AIR FORCE

OCCUPATIONAL SURVEY REPORT

DEFENSIVE FIRE CONTROL SYSTEMS
CAREER LADDER

AFSC 321X1E/G

AFPT 90-321-771

MARCH 1987

OCCUPATIONAL ANALYSIS PROGRAM
USAF OCCUPATIONAL MEASUREMENT CENTER
AIR TRAINING COMMAND
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PREFACE

This Occupational Survey Report (OSR) presents the results of a detailed Air Force occupational survey of the Defensive Fire Control Systems (AFSC 321X1E/G) career ladder. Authority for conducting occupational surveys is contained in AFR 35-2. Computer products used in analysis for this report are available for use by operations and training officials.

The survey instrument for this project was developed by Mr William C. Cosgrove, Inventory Developer. Ms Rebecca Hernandez provided computer support for the project. Second Lieutenant Jose E. Caussade, Occupational Analyst, analyzed the data and wrote the final report. Administrative support was provided by Ms Raquel A. Soliz. This report has been reviewed by Lieutenant Colonel Charles D. Gorman, Chief, Airman Analysis Branch, USAF Occupational Measurement Center, Randolph Air Force Base, Texas 78150-5000.

Copies of this report are distributed to Air Staff sections, major commands, and other interested training and management personnel (see distribution on page i). Additional copies are available upon request to the USAF Occupational Measurement Center, Attention: Chief, Occupational Analysis Division (OMY), Randolph Air Force Base, Texas.

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SUMMARY OF RESULTS

1. Survey Coverage: Survey results are based on responses from 68 respondents in AFSC 321X1E and 178 respondents in AFSC 321X1G. This represents 67 percent of the assigned E-shred group and 70 percent of the assigned G-shred group.

2. Specialty Structure: The survey sample divided cleanly into separate shreds, with each exhibiting a similar breakdown of jobs. These jobs consisted of first-line supervisors, flightline personnel, shop personnel, and instructors. Workcenter Supervisors made up a separate independent job group which consisted of personnel from both shreds.

3. Career Ladder Progression: Career ladder progression for each shred showed 3- and 5-skill level personnel performing primarily technical tasks. As expected, 7-skill level personnel perform more supervisory duties, but still spend large amounts of time performing technical tasks. AFR 39-1 specialty descriptions for the various skill levels were also analyzed and found descriptive of the various duties and responsibilities of the career ladder.

4. Training Analysis: The Specialty Training Standard and Plan of Instruction for each shred were analyzed against career ladder data. The Specialty Training Standards for both shreds were found in need of review by training personnel, with a goal toward updating or revising the documents. This is especially true of the E-shred STS. The Plans of Instruction for both shreds were largely supported by survey data. Several unreferenced tasks, however, need to be examined for possible inclusion.

5. Job Satisfaction: Job satisfaction indicators for each shred were fairly high, with G-shred personnel generally displaying the most positive responses. Retention rate indicators in each shred tended to be lower than comparative sample information, especially for E-shred personnel.

6. Implications: Career ladder progression was normal. Training docum are in need of review and revision. Job satisfaction information on ret rates needs to be examined.

OCCUPATIONAL SURVEY REPORT
DEFENSIVE FIRE CONTROL SYSTEMS CAREER LADDER
(AFSC 321X1E/G)

INTRODUCTION

This occupational survey report addresses the Defensive Fire Control Systems career ladder (AFSC 321X1E/G). HQ ATC/TTQL requested this study due to a realignment of maintenance procedures and the introduction of updated equipment since the last OSR. The purposes of this study are to validate and update specialty training standards and validate supporting training programs.

The career ladder is divided into two shredouts, E and G. Shredout E personnel are assigned to B-52H units with ASG-21 Defensive Fire Control Systems (DFCS), and shredout G personnel to B-52G units with ASG-15 DFC systems. Both shredouts have undergone several changes over the years, reflecting turret and fire control systems modifications and title or AFSC changes. Throughout all of these changes, the basic tasks of each shredout have remained approximately the same: inspecting, operating, troubleshooting, repairing, overhauling, and modifying aircraft Defensive Fire Control Systems and related equipment. AFSC 321X1E/G was last surveyed in February 1979.

Initial training given to AFSC 321X1 personnel covers essentially the same subject areas. The specific system taught depends on the shred the trainee enters. These courses (G3ABR32131E for the E-shred and G3ABR32131G for the G-shred) are taught at Lowry AFB and last 26 weeks and 2 days for the E-shred and 19 weeks for the G-shred. They deal primarily with isolating unit malfunctions, maintaining DFCS units, and readying these units for operational missions. Other topics taught include fundamentals of electronics, data flow and functional loop analysis, and Air Force technical orders, manuals, and other maintenance publications.

Keywords: Personnel development, Skills, Air force personnel, Job analysis.

SURVEY METHODOLGY

Survey Development

Data for this survey were collected using USAF Job Inventory AFPT 90-321-771, dated January 1986. After reviewing pertinent career ladder publications and tasks from previous survey instruments, the inventory developer prepared a preliminary task list. This preliminary task list was refined and validated through personal interviews with 44 subject-matter experts at seven different bases to ensure a representative sample of the various Defensive Fire Control Systems functions. The locations selected for visits and the reasons for their selection are listed below:

Lowry AFB CO - Technical Training Center. Responsible for courses G3ABR32131E and G3ABR32131G.

Ellsworth AFB SD - Midtier SAC base with B-52Hs (E-shred). Small organization providing a representative maintenance function for this system.

Castle AFB CA - West Coast SAC base with B-52Gs (G-shred). Largest maintenance organization and, because of the training function at the base, has unique maintenance requirements.

K. I. Sawyer AFB MI - Northern-tier SAC base with B-52Hs (E-shred). Small-sized maintenance organization representative of northern base.

Loring AFB ME - Northern-tier and East Coast SAC base with B-52Gs (G-shred). Small organization and unique missions of the parent unit provide increased maintenance requirements.

Barksdale AFB LA - Southern-tier SAC base with B-52Gs (G-shred). Medium-sized organization with representative maintenance functions.

Carswell AFB TX - Southern-tier SAC base with B-52Hs (E-shred). Medium-sized organization with representative maintenance functions.

The final job inventory consisted of 433 tasks divided into 12 functional duties. The inventory also contains a background section which includes questions on equipment use, grade, total active federal military service (TAFMS), and job title.

Survey Administration

To complete the survey, each incumbent first answered the background questions, then marked the tasks he or she performed. Finally, the incumbent rated each task performed according to the relative time spent performing that task. Ratings range from 1 (a very small amount of time spent) to 9 (a very large amount of time spent). As part of the computer analysis, all of an incumbent's ratings are combined, and the total is assumed to represent 100 percent of the individual's time on the job. Each rating is then divided by this total and multiplied by 100 to give the relative percent time spent for each task. Using these figures, analysis compares tasks in terms of the relative percent time spent performing them.

Upon receipt of the inventory booklets from USAFOMC, survey control officers at Consolidated Base Personnel Offices (CBPO) worldwide distributed the inventory to all eligible AFSC 321X1E/G personnel. A total of 265 incumbents were selected from a computer-generated list obtained from the Air Force

Human Resources Laboratory (AFHRL). Excluded from this list were personnel in training, hospital, or PCS status. This list of eligible personnel included an accurate representation across critical locations. Table 1 reflects the distribution by MAJCOM and AFSC of personnel assigned to the career ladder as of January 1986 and of respondents in the survey sample. The 246 respondents in the final sample represent 69 percent of the total assigned DAFSC 321X1E/G personnel and 93 percent of those eligible.

Task Factor Administration

In addition to collecting task performance data, part of the survey administration process involves collecting task factor ratings of task difficulty (TD) and training emphasis (TE). However, these ratings are collected only from senior NCOs randomly selected to represent their career ladder and are processed separately from task performance data.

Task difficulty refers to the length of time required for the average job incumbent to learn to do a task. To complete the TD booklet, each senior NCO rated inventory tasks with which they were familiar on a 9-point scale, ranging from extremely low relative difficulty (a rating of 1) to extremely high relative difficulty (a rating of 9). Because of different policies regarding TD, separate ratings were computed for each shred. The interrater reliability of the TD data provided by 25 AFSC 321X1E NCOs was .93. The 55 AFSC 321X1G NCOs providing TD ratings had an interrater reliability of .95. Each of these TD ratings were adjusted to give a rating of 5.00 to a task of average difficulty, with a standard deviation of 1.00. The TD ratings provide a rank-ordered listing of the tasks in the inventory by degree of difficulty.

Training Emphasis refers to the importance of structured training (through resident technical schools, field training detachments, formal OJT, etc.) of particular tasks for first-enlistment personnel. Individuals completing TE booklets rated tasks on a 10-point scale, ranging from a blank (no training emphasis) to 9 (extremely heavy training required). The TE ratings provide a rank-ordered listing of tasks from high to low training emphasis. Separate ratings were also computed for each shred due to different policies regarding TE of tasks in each shred. The interrater reliability for the 22 NCOs with AFSC 321X1E was .96. The average TE rating was 1.64, with a standard deviation of 2.11. Tasks rated above 3.75 are considered high in TE for AFSC 321X1E first-enlistment personnel. The 42 AFSC 321X1G TE raters had an interrater reliability of .98, with an average of 1.79 and a standard deviation of 1.96. Tasks above 3.75 are considered high in TE for AFSC 321X1G first-enlistment personnel.

When used in conjunction with other information, such as percent members performing, TD and TE ratings can provide insight into training requirements. Such insight may help validate lengthening or shortening portions of instruction supporting AFSC-needed knowledges or skills.

TABLE 1

COMMAND DISTRIBUTION OF SURVEY SAMPLE

COMMAND	321X1E		321X1G	
	PERCENT ASSIGNED (N=101)	PERCENT OF SAMPLE (N=68)	PERCENT ASSIGNED (N=255)	PERCENT OF SAMPLE (N=178)
SAC	86	90	90	94
ATC	14	10	10	6

Total Assigned: 101-E 255-G
* Total Eligible: 74-E 191-G
Total in Sample: 68-G 178-G
Percent of Assigned in Sample: 67%-E 70%-G
Percent Eligible in Sample: 92%-E 93%-E

* Excludes those in training, hospital, or PCS status

SPECIALTY JOBS
(Career Ladder Structure)

An important function of the USAF Occupational Analysis Program is to examine a career ladder's structure. Based on incumbent responses to the survey, analysis identifies groups of incumbents spending similar amounts of time performing similar tasks. Individuals performing many of the same tasks and spending similar amounts of time on those tasks group together to describe a job performed in the career ladder. To describe the functional areas of the career ladder, similar jobs are grouped together into clusters. Those jobs too dissimilar to group together are termed independent job types. In this way, analysis identifies the basic structure of the career ladder in terms of the jobs performed and their relationship to each other. This analysis provides a foundation for evaluating other aspects of the career ladder, such as personnel classification, AFR 39-1 Specialty Descriptions, and training considerations.

Specialty Structure Overview

Analysis of the AFSC 321X1E/G career ladder showed a similar breakdown in jobs within both shreds. These consisted of flightline personnel, field shop personnel, instructors, and supervisory personnel. The following outline, which is illustrated in Figure 1, gives a more specific description of the AFSC 321X1E/G career ladder. The group (GRP) or special (SPC) number refers to computer-printed information; the number of personnel in the group is represented by the letter N.

I. B-52G DEFENSIVE FIRE CONTROL PERSONNEL (GRP009, N=158)

- A. ASG-15 DFCS First-Line Supervisors (GRP038, N=21)
- B. ASG-15 DFCS Flightline Personnel (GRP040, N=118)
- C. ASG-15 DFCS Instructors (GRP036, N=8)
- D. ASG-15 DFCS Field Shop Personnel (GRP030, N=6)

II. WORKCENTER SUPERVISORS (GRP026, N=13)

III. B-52H DEFENSIVE FIRE CONTROL PERSONNEL (SPC027, N=55)

- A. ASG-21 DFCS First-Line Supervisors (SPC043, N=15)
- B. ASG-21 DFCS Flightline Personnel (GRP037, N=31)
- C. ASG-21 DFCS Field Shop Personnel (GRP024, N=6)
- D. ASG-21 DFCS Instructors (GRP015, N=4)

Ninety-three percent of the survey respondents grouped into the above clusters and independent job type. The remaining 7 percent either did not perform functions similar enough to group together or performed so few tasks in the inventory their job could not be described. An example of a job much different from anyone else in the career ladder is that of the CDC writer.

AFSC 321X1E/G SPECIALTY JOBS

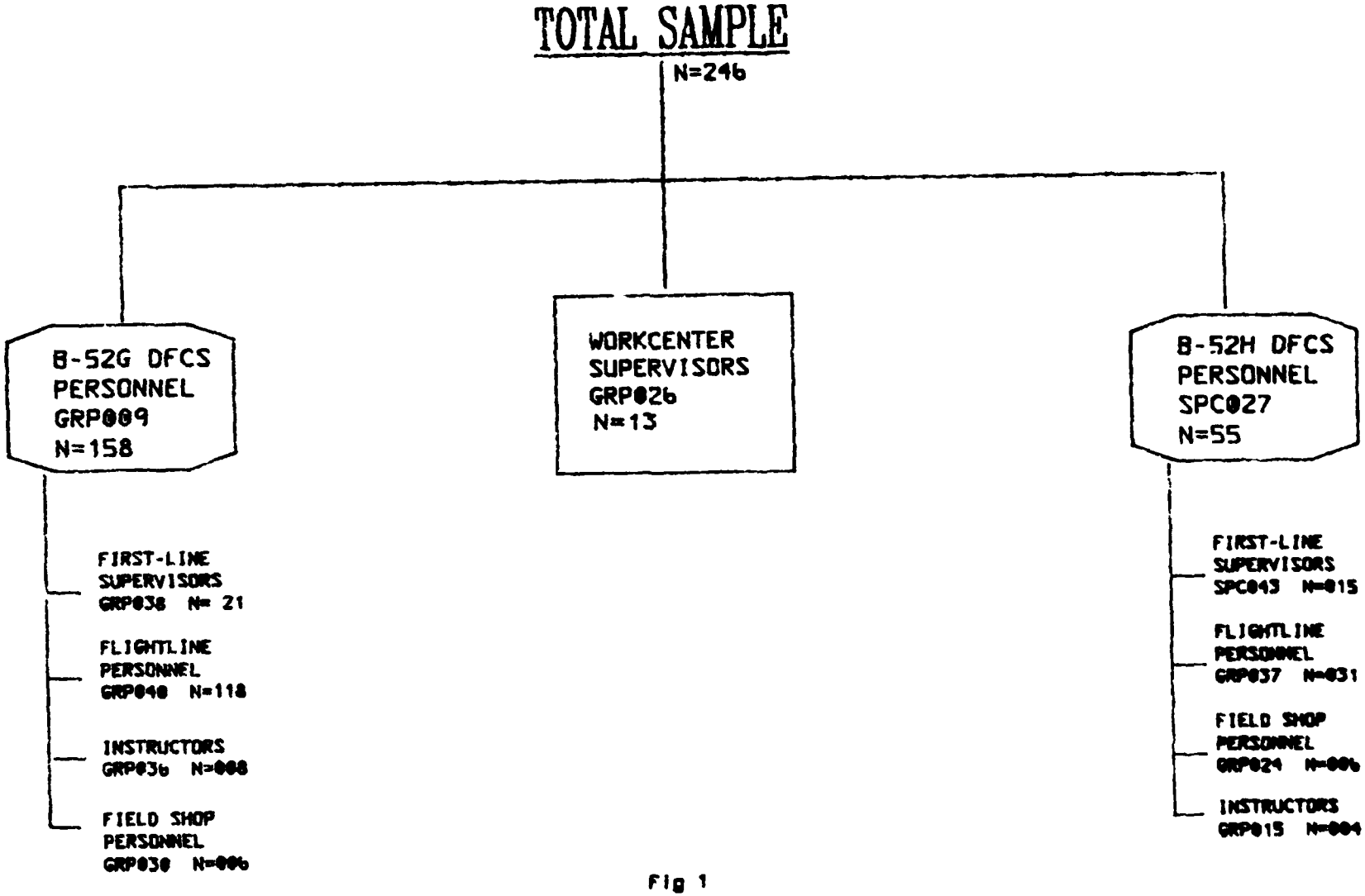

Fig 1

Group Descriptions

The following paragraphs briefly describe the clusters and independent job type identified in the analysis. Table 2 provides selective background data on these groups. For a more detailed listing of representative tasks and a summary of background data on these groups and the jobs within these groups, see Appendix A.

I. B-52G DEFENSIVE FIRE CONTROL PERSONNEL (GRP009). The 158 airmen in this cluster account for 64 percent of the sample. Personnel in this cluster are responsible for the maintenance and repair of defensive fire control system components and test equipment on the ASG-15 DFC system on B-52Gs. They work primarily on the flightline, with flightline maintenance tasks accounting for 52 percent of their total job time. Personnel perform an average of 139 tasks which include:

remove or replace turret cowlings on ASG-15 DFCS
perform preflight inspections on ASG-15 DFCS
troubleshoot system malfunctions in wiring, other than that in LRU
troubleshoot malfunctions involving direct current circuits
remove or replace .50 caliber M-3 guns on ASG-15 DFCS
perform system checks and adjustments on ASG-15 DFCS armament system hydraulics

These personnel average about 5 years TAFMS. Many are qualified at the 5-skill level (48 percent), with 31 percent qualified at the 3-skill level and 21 percent at the 7-skill level. Jobs included in this cluster are ASG-15 DFCS First-Line Supervisors, ASG-15 DFCS Flightline Personnel, ASG-15 DFCS Instructors, and ASG-15 DFCS Field Shop Personnel.

ASG-15 DFCS First-Line Supervisors are some of the more senior people in the sample, averaging over 11 years TAFMS. These individuals, while performing both ASG-15 DFCS shop and flightline tasks, also perform many supervisory and administrative functions. Thus, they have a very broad job, averaging 198 tasks performed. This group spends a slightly larger proportion of their total job time performing field shop tasks as opposed to flightline tasks. Representative field shop tasks include performing in-shop maintenance on servo centrals, tracking frequency converter transmitters, modulators, and computer centrals. Representative flightline tasks include performing fast operational checkouts on ASG-15 DFCS, troubleshooting malfunctions in radar track radar range mode on ASG-15 DFCS, and performing tracking channels (lock-on) checks and adjustments on ASG-15 DFCS. Representative supervisory and administrative tasks include directing field shop maintenance, establishing work priorities, and interpreting IO wiring or circuit diagrams for subordinates.

TABLE 2

SELECTED BACKGROUND DATA FOR SPECIALTY JOB GROUPS

	B-52G DFC PERS CLUSTER	JOB TYPES			
		FIRST-LINE SUPV	FLIGHTLINE PERS	G-SHRED INSTR	SHOP PERS
NUMBER IN GROUP	158	21	118	8	6
PERCENT OF SAMPLE	64%	9%	48%	3%	2%
AVERAGE NUMBER OF TASKS	139	193	143	60	52
MAJCOM (PERCENT):					
ATC	6%	5%	0%	100%	0%
SAC	94%	95%	100%	0%	100%
DAFSC (PERCENT):					
32131	31%	0%	36%	0%	33%
32151	48%	33%	53%	50%	50%
32171	21%	67%	12%	50%	17%
SUFFIX OF DAFSC 321X1 PERSONNEL:					
321X1E	0%	0%	0%	0%	0%
321X1G	100%	100%	100%	100%	100%
AVERAGE TICF (MOS)	57	123	46	98	31
AVERAGE TAFMS (MOS)	64	135	52	104	35
PERCENT FIRST ENLISTMENT	56%	14%	63%	13%	83%

TABLE 2 (CONTINUED)

SELECTED BACKGROUND DATA FOR SPECIALTY JOB GROUPS

	WORKCENTER SUPV IJT	B-52H DFC PERS CLUSTER	JOB TYPES			
			FIRST-LINE SUPV	FLIGHTLINE PERS	SHOP PERS	E-SHRED INST
NUMBER IN GROUP	13	55	15	31	6	4
PERCENT OF SAMPLE	5%	22%	6%	13%	2%	2%
AVERAGE NUMBER OF TASKS	107	120	181	107	64	37
MAJCOM (PERCENT):						
ATC	8%	4%	0%	3%	17%	100%
SAC	92%	96%	100%	97%	83%	0%
DAFSC (PERCENT):						
32131	0%	22%	0%	29%	33%	0%
32151	8%	38%	13%	48%	67%	100%
32171	92%	40%	87%	23%	0%	0%
SUFFIX OF DAFSC 321X1 PERSONNEL:						
321X1E	38%	100%	100%	100%	100%	100%
321X1G	62%	0%	0%	0%	0%	0%
AVERAGE TICF (MOS)	177	70	122	55	25	78
AVERAGE TAFMS (MOS)	186	91	149	70	29	83
PERCENT FIRST ENLISTMENT	0%	38%	0%	49%	83%	0%

ASG-15 DFCS Flightline Personnel make up the largest job in this cluster (118 airmen) and spend over 60 percent of their total job time performing flightline maintenance on ASG-15 DFCS. Some of their more representative tasks include removing or replacing turret cowlings, servo centrals, and shock mounts on ASG-15 DFCS, and troubleshooting malfunctions in system operation on ASG-15 DFCS.

ASG-15 DFCS Instructors, as the name implies, have the primary responsibility of training personnel on the ASG-15 DFCS. Additionally, they spend large amounts of time performing flightline maintenance tasks on ASG-15 DFCS as part of their training responsibilities. These tasks primarily consist of performing system checks and adjustments on equipment such as search radar system pulse sweep generators, track radar system target position computers, and armament system centrals and components.

The last job found in this cluster was ASG-15 DFCS Field Shop Personnel. These are primarily first-enlistment personnel working in the field shop. They have a narrow job averaging 52 tasks, some of which include performing in-shop maintenance on ASG-15 DFCS modulators, pulse sweep generators (PSG), radar indicators, and power centrals.

A variation in this cluster warrants mention. These are a group of five G-shred personnel who are among the most junior in the entire sample, averaging only 11 months TAFMS. This group has the primary responsibility of performing maintenance on M-3 .50 caliber machine guns and associated equipment.

II. WORKCENTER SUPERVISORS (GRP026). The 13 individuals in this job account for 6 percent of the total sample. These supervisors are responsible for overseeing the activities performed both on the flightline and in the field shop. This group also includes individuals who call themselves Quality Assurance Inspectors. These are the most senior individuals in the sample, with an average TAFMS of over 15 years. Most are qualified at the 7-skill level (92 percent), with the remainder being qualified at the 5-skill level (8 percent). Both shreds are represented, with 62 percent belonging to the G-shred and 38 percent to the E-shred. As would be expected, over 88 percent of their total job time is spent performing supervisory and administrative functions. Personnel in this group perform an average of 107 tasks. Representative tasks include:

evaluate completed maintenance actions
evaluate maintenance of equipment
interpret policies, directives, or procedures for subordinates
review inspection reports
counsel subordinates on personal or military-related problems
establish work priorities

III. B-52H DEFENSIVE FIRE CONTROL PERSONNEL (SPC027). This cluster broke out very similarly to the G-shred group in the jobs performed. The major difference between the two groups is in the type of DFC system and aircraft worked on. While G-shred personnel work on the ASG-15 DFCS on B-52Gs, AFSC 321X1E personnel maintain the ASG-21 DFCS on B-52H aircraft. Fifty-five individuals make up this cluster, which accounts for 23 percent of the total sample. As stated above, personnel in this cluster have the responsibility for the maintenance and repair of the DFCS components and test system on B-52Hs. Like the G-shred, much of this group's total job time is spent performing flightline functions (32 percent). There is, however, a greater proportion of this group's job time spent performing shop maintenance on the ASG-21 DFC system (14 percent). Personnel in this cluster perform an average of 126 tasks, some of which include:

perform operational checkouts of ASG-21 DFCS
remove or replace antennas on ASG-21 DFCS
troubleshoot malfunctions on ASG-21 DFCS to line replaceable units (LRU) on B-52H
troubleshoot malfunctions involving direct current circuits
perform in-shop maintenance on ASG-21 antennas
perform operational assurance/fault isolation (OAFI) tests on E-831 test stations

Personnel average over 7 years TAFMS, with both 5-skill level and 7-skill level personnel each making up 39 percent of the cluster and the remainder (21 percent) being 3-skill level personnel. This cluster broke into the same jobs as the G-shred cluster, consisting of ASG-21 DFCS First-Line Supervisors, ASG-21 DFCS Flightline Personnel, ASG-21 DFCS Field Shop Personnel, and ASG-21 DFCS Instructors.

The ASG-21 DFCS First-Line Supervisors are much like their equivalents in the G-shred. They have a very broad job, averaging 196 tasks, and have an average TAFMS of 12 years. They perform both shop and flightline tasks in addition to their supervisory and administrative functions. Commonly performed field shop tasks include performing in-shop maintenance on ASG-21 DFCS antennas, frequency converter transmitters (FCT), and tracking control assemblies (TCA). Flightline tasks performed include performing electrical harmonization on ASG-21 DFCS and removing or replacing antennas and frequency converter transmitters (FCT) on ASG-21 DFCS. Representative supervisory and administrative tasks performed include supervising 3- and 5-skill level personnel, establishing work priorities, and interpreting TO wiring or circuit diagrams for subordinates.

ASG-21 DFCS Flightline Personnel make up 55 percent of the cluster and spend 45 percent of their total job time performing flightline maintenance on ASG-21 DFCS. Some representative tasks include performing hydraulic servicing on ASG-21 DFCS, removing or replacing radomes on ASG-21 DFCS, and troubleshooting malfunctions on ASG-21 DFCS to line replaceable units (LRU) on B-52H. ASG-21 DFCS Shop Personnel, on the other hand, spend much (42 percent) of their total job time performing shop maintenance on ASG-21 DFCS and only 8

percent performing flightline functions. This group is more junior than the Flightline Personnel, averaging less than 3 years TAFMS as opposed to 6 years for the Flightline group. They have a narrow job averaging 64 tasks, some of which include performing operational assurance/fault isolation (OAFI) tests on E-831 test stations, performing in-shop maintenance on ASG-21 antennas, and performing in-shop maintenance on ASG-21 tracking control assemblies (TCA). The final group identified were ASG-21 DFCS Instructors. Unlike their G-shred counterparts, this group spends a greater proportion of their time performing training functions, as opposed to flightline or field shop functions.

Comparison of Specialty Jobs

In general, the survey sample divided cleanly into separate shreds, with each shred exhibiting a similar breakdown of jobs. As stated above, this breakdown consisted of flightline personnel, shop personnel, instructors, and supervisors. Examining differences between the jobs identified in each shred show few differences. E-shred personnel were slightly more senior, based on TAFMS, than their G-shred counterparts. This held true for every job identified except for G-shred Instructors, who were more senior than the E-shred Instructors. In fact, while 50 percent of G-shred Instructors were qualified at the 7-skill level, 100 percent of E-shred Instructors were qualified only at the 5-skill level. G-shred personnel, on the other hand, tend to perform a slightly higher number of tasks (see Table 2).

An examination of jobs within each cluster shows most people performing flightline tasks, with G-shred personnel performing more of them than E-shred individuals. As one gets more senior, there is a trend in both shreds to perform both flightline and shop tasks. This was especially evident in the First-Line Supervisor groups who spend large amounts of time performing both flightline and shop functions. The other group identified, Workcenter Supervisors, were the most senior in the sample and spend little time performing technical tasks.

Since the survey was administered to job incumbents, a new maintenance concept has been implemented within Strategic Air Command (SAC)--the Readiness Oriented Logistics System (ROLS). Basically, ROLS establishes a complete separation between flightline and field shop work, much like the Combat Oriented Maintenance Organization (COMO) system currently used by Tactical Air Command (TAC). Although the AFSC 321X1E/G job inventory did not specifically address ROLS tasks, much of the overall job structure should still be valid. This is because the identified job groups reflect the type of separation envisioned by ROLS; that is, separate flightline and field shop jobs.

Comparison to Previous Survey

The results of this survey were compared to the results of the last survey, AFPT 90-323-103, dated February 1979. That report differed slightly from the present one in that it also included personnel who performed maintenance on the B-52D DFCS and personnel with an AFSC of 32191 and 32192. The 1979

report revealed essentially the same three major jobs identified in this report. Table 3 highlights the comparisons between this survey and the previous one. The similarity in the breakdown of identified major jobs indicates that the career ladder has been fairly stable through the years in terms of the basic career ladder structure. One difference noted was in the Supervisory and Managerial Cluster, which was much larger in the previous study (N=81). This could have been due to the inclusion of 9-skill level personnel in the previous study.

DAFSC ANALYSIS

In addition to analyzing the career ladder structure, examining skill levels is helpful in understanding this career ladder. The DAFSC analysis compares skill levels, highlighting differences in the tasks performed at these levels. This information is also useful in evaluating how well various career ladder documents, such as AFR 39-1 Specialty Descriptions and the Specialty Training Standards (STS), reflect what career ladder personnel are actually doing in the field.

This section will begin with an analysis of the E-shred duty skill levels, followed by the G-shred duty skill levels. An examination of various background information and tasks performed by personnel at the skill levels in each shred shows an overall progression from the more technically-oriented jobs at the 3-skill level to the more administrative and supervisory functions at the 7-skill level. The distribution of skill level groups across each shred is shown in Table 4 for the E-shred and Table 5 for the G-shred. To give a sense of the progression through the skill levels, relative time spent on each duty by skill level is presented in Table 6 for the E-shred and Table 7 for the G-shred.

E-Shred Skill Level Discussion

The 14 airmen with DAFSC 32131E comprise 20 percent of the total AFSC 321X1E sample. They perform a primarily technical job consisting of flightline functions, with some field shop tasks included. Some of the tasks they perform include troubleshooting malfunctions involving direct current circuits, performing operational checkouts of ASG-21 DFCS, and performing hydraulic servicing on ASG-21 DFCS. In accordance with this, the duties that take up large portions of their total job time include performing flightline maintenance on ASG-21 DFCS on B-52H (38 percent) and performing shop maintenance on ASG-21 DFCS and associated equipment (13 percent). Most of the 3-skill level personnel are in the Flightline Personnel job (see Table 4). This group performs an average of 72 tasks, some of which are listed in Table 8.

The 27 5-skill level personnel in the E-shred account for 40 percent of the total AFSC 321X1E sample. They perform a primarily technical job, similar in nature to the 3-skill level group. One difference between 3- and 5-skill level groups is the increase in the 5-skill level group's total job time spent

TABLE 3

AFSC 321X1E/G JOB SPECIALTY COMPARISONS BETWEEN CURRENT AND PREVIOUS SURVEYS

1986 JOB GROUPS (N=246)	1979 JOB GROUPS (N=331)
I. B-52G DEFENSIVE FIRE CONTROL PERSONNEL (N=158)	I. B-52D/G FCS CLUSTER (N=178)
A. ASG-15 DFCS FIRST-LINE SUPERVISORS (N=21)	A. FLIGHTLINE MECHANICS (N=79)
B. ASG-15 DFCS FLIGHTLINE PERSONNEL (N=118)	B. LEAD MECHANICS (N=63)
C. ASG-15 DFCS INSTRUCTORS (N=8)	C. SHOP LEAD TECHNICIANS (N=6)
D. ASG-15 DFCS FIELD SHOP PERSONNEL (N=6)	D. LINE LEAD TECHNICIANS (N=8)
	E. ENTRY FLIGHTLINE MECHANICS (N=6)
	F. SHOP TECHNICIANS (N=10)
II. WORKCENTER SUPERVISORS (N=13)	II. SUPERVISORY AND MANAGERIAL CLUSTER (N=81)
	A. BRANCH CHIEFS (N=30)
	B. HQs QUALITY CONTROL INSPECTORS (N=8)
	C. QUALITY CONTROL INSPECTORS (N=9)
	D. TECHNICAL SCHOOL INSTRUCTORS (N=10)
III. B-52H DEFENSIVE FIRE CONTROL PERSONNEL (N=55)	III. B-52H FCS CLUSTER (N=60)
A. ASG-21 DFCS FIRST-LINE SUPERVISORS (N=15)	A. SUPERVISORS (N=11)
B. ASG-21 DFCS FLIGHTLINE PERSONNEL (N=31)	B. FLIGHTLINE MECHANICS (N=8)
C. ASG-21 DFCS FIELD SHOP PERSONNEL (N=6)	C. ENTRY FLIGHTLINE MECHANICS (N=19)
D. ASG-21 DFCS INSTRUCTORS (N=4)	D. SHOP MECHANICS (N=6)
	E. SHOP LEAD MECHANICS (N=6)
	F. SHOP TECHNICIANS (N=6)

TABLE 4

DISTRIBUTION OF DAFSC 321X1E SKILL-LEVEL
MEMBERS ACROSS CAREER LADDER JOBS
(PERCENT RESPONDING)

JOB GROUPS	DAFSC 32131E (N=14)	DAFSC 32151E (N=27)	DAFSC 32171E (N=27)
II. WORKCENTER SUPERVISORS (N=13)	0	4	15
III. B-52H DFC PERSONNEL (N=55)			
A. FIRST-LINE SUPERVISORS (N=15)	0	7	48
B. FLIGHTLINE PERSONNEL (N=31)	64	56	26
C. SHOP PERSONNEL (N=6)	14	15	0
D. E-SHRED INSTRUCTORS (N=4)	0	15	0
PERCENT NOT GROUPED	22	3	11

TABLE 5

DISTRIBUTION OF DAFSC 321X1G SKILL-LEVEL
MEMBERS ACROSS CAREER LADDER JOBS
(PERCENT RESPONDING)

JOB GROUPS	DAFSC 32131G (N=49)	DAFSC 32151G (N=80)	DAFSC 32171G (N=49)
I. B-52G DFC PERSONNEL (N=158)			
A. FIRST-LINE SUPERVISORS (N=21)	0	9	29
B. FLIGHTLINE PERSONNEL (N=118)	86	77	29
C. G-SHRED INSTRUCTORS (N=8)	0	5	8
D. SHOP PERSONNEL (N=6)	4	4	2
II. WORKCENTER SUPERVISORS (N=13)	0	0	16
PERCENT NOT GROUPED	10	5	16

TABLE 6

RELATIVE TIME SPENT ON DUTIES BY DAFSC 321X1E SKILL-LEVEL MEMBERS

JOB GROUPS		DAFSC 32131E (N=14)	DAFSC 32151E (N=27)	DAFSC 32171E (N=27)
A	ORGANIZING AND PLANNING	2	3	6
B	DIRECTING AND IMPLEMENTING	5	8	15
C	INSPECTING AND EVALUATING	2	4	11
D	TRAINING	*	8	6
E	PERFORMING ADMINISTRATIVE TASKS	11	9	11
F	PERFORMING GENERAL DEFENSIVE FIRE CONTROL SYSTEMS (DFCS) FUNCTIONS	19	17	13
G	PERFORMING FLIGHTLINE MAINTENANCE ON ASG-21 DEFENSIVE FIRE CONTROL SYSTEMS (DFCS) ON B-52H	38	29	23
H	PERFORMING SHOP MAINTENANCE ON ASG-21 DEFENSIVE FIRE CONTROL SYSTEMS (DFCS) AND ASSOCIATED EQUIPMENT	13	15	11
I	PERFORMING FLIGHTLINE MAINTENANCE ON ASG-15 DEFENSIVE FIRE CONTROL SYSTEMS (DFCS) ON B-52G	2	*	0
J	PERFORMING SHOP MAINTENANCE ON ASG-15 DEFENSIVE FIRE CONTROL SYSTEMS (DFCS)	0	0	0
K	PERFORMING MAINTENANCE ON M-3 .50 CALIBER MACHINE GUN AND ASSOCIATED EQUIPMENT	*	0	0
L	PERFORMING MAINTENANCE ON M-61 GUNS AND ASSOCIATED EQUIPMENT	6	7	4

* Less than 1 percent

TABLE 7

RELATIVE TIME SPENT ON DUTIES BY DAFSC 321X1G SKILL-LEVEL MEMBERS

JOB GROUPS		DAFSC 32131G (N=49)	DAFSC 32151G (N=80)	DAFSC 32171G (N=49)
A	ORGANIZING AND PLANNING	*	1	6
B	DIRECTING AND IMPLEMENTING	*	5	16
C	INSPECTING AND EVALUATING	*	2	13
D	TRAINING	*	4	8
E	PERFORMING ADMINISTRATIVE TASKS	4	7	9
F	PERFORMING GENERAL DEFENSIVE FIRE CONTROL SYSTEMS (DFCS) FUNCTIONS	15	16	12
G	PERFORMING FLIGHTLINE MAINTENANCE ON ASG-21 DEFENSIVE FIRE CONTROL SYSTEMS (DFCS) ON B-52H	*	*	0
H	PERFORMING SHOP MAINTENANCE ON ASG-21 DEFENSIVE FIRE CONTROL SYSTEMS (DFCS) AND ASSOCIATED EQUIPMENT	*	*	*
I	PERFORMING FLIGHTLINE MAINTENANCE ON ASG-15 DEFENSIVE FIRE CONTROL SYSTEMS (DFCS) ON B-52G	63	51	24
J	PERFORMING SHOP MAINTENANCE ON ASG-15 DEFENSIVE FIRE CONTROL SYSTEMS (DFCS)	4	7	7
K	PERFORMING MAINTENANCE ON M-3 .50 CALIBER MACHINE GUN AND ASSOCIATED EQUIPMENT	12	7	5
L	PERFORMING MAINTENANCE ON M-61 GUNS AND ASSOCIATED EQUIPMENT	0	*	*

* Less than 1 percent

TABLE 8

REPRESENTATIVE TASKS PERFORMED BY DAFSC 32131E PERSONNEL

TASKS		PERCENT PERFORMING (N=14)
F190	TROUBLESHOOT MALFUNCTIONS INVOLVING DIRECT CURRENT CIRCUITS	86
F189	TROUBLESHOOT MALFUNCTIONS INVOLVING ALTERNATING CURRENT CIRCUITS	86
G212	PERFORM OPERATIONAL CHECKOUTS OF ASG-21 DFCS	79
G209	PERFORM HYDRAULIC SERVICING ON ASG-21 DFCS	79
G206	DEARM M-61 GUNS ON B-52H	79
F188	TROUBLESHOOT MALFUNCTIONS IN PRESSURIZATION SYSTEMS	79
G205	ARM M-61 GUNS ON B-52H	71
G244	REMOVE OR REPLACE RADOMES ON ASG-21 DFCS	71
G219	REMOVE OR REPLACE ANTENNAS ON ASG-21 DFCS	71
G207	PERFORM ELECTRICAL HARMONIZATION ON ASG-21 DFCS	71
G208	PERFORM GUN BORESIGHTING ON ASG-21 DFCS	71
F166	DRIVE VEHICLES FOR DFCS MAINTENANCE SUPPORT	71
G210	PERFORM LIMITED POWER ON (LPO) CHECKS FOR IN-FLIGHT FIRING ON ASG-21 DFCS	71
G252	TROUBLESHOOT MALFUNCTIONS ON ASG-21 DFCS TO LINE REPLACEABLE UNITS (LRU) ON B-52H	71
G240	REMOVE OR REPLACE M-61 GUN ON B-52HS	71
G236	REMOVE OR REPLACE HYDRAULIC POWER SUPPLY (HPS) ON ASG-21 DFCS	71
G246	REMOVE OR REPLACE TRACKING CONTROL ASSEMBLY (TCA) ON ASG-21 DFCS	71
G230	REMOVE OR REPLACE FREQUENCY CONVERTER TRANSMITTERS (FCT) ON ASG-21 DFCS	71
G223	REMOVE OR REPLACE CONTROLLED LINE PLATFORMS (CLP) ON ASG-21 DFCS	71
G222	REMOVE OR REPLACE CONTROL INDICATORS (CI) ON ASG-21 DFCS	71
G245	REMOVE OR REPLACE SYSTEM CONTROL ASSEMBLY (SCA) ON ASG-21 DFCS	71
G235	REMOVE OR REPLACE GUN FEEDERS ON ASG-21 DFCS	71
G233	REMOVE OR REPLACE GUN COVER BOOTS ON ASG-21 DFCS	71
F181	REPAIR MULTI-PIN CONNECTORS	71
G228	REMOVE OR REPLACE FIRE CONTROL SYSTEM CONTROLS (HAND CONTROL) ON ASG-21 DFCS	71
F173	PERFORM MAINTENANCE ON ELECTRICAL CONNECTORS	71
F186	TROUBLESHOOT MALFUNCTIONS IN HYDRAULIC SYSTEMS	64
H258	PERFORM IN-SHOP MAINTENANCE ON ASG-21 ANTENNAS	64
H148	ORDER PARTS BY TELEPHONE	64
F203	TROUBLESHOOT SYSTEM MALFUNCTIONS IN WIRING, OTHER THAN THAT IN LRU	64
G211	PERFORM MAINTENANCE ON ASG-21 GUN-LAYING MOUNTS	64
G217	PERFORM 100-DAY M-61 GUN INSPECTIONS ON B-52H	64
L423	ASSEMBLE M-61 GUNS	64
H261	PERFORM IN-SHOP MAINTENANCE ON ASG-21 CONTROL INDICATORS (CI)	64
F180	REMOVE, REPLACE, OR SPLICE ELECTRICAL WIRING	64

performing supervisory duties. While AFSC 32131E personnel spend only 9 percent of their total job time performing supervisory duties (Duties A through D), 5-skill level personnel spend 23 percent of their job time performing these duties. Along with this shift, many of the technical duties show a decrease in time spent for AFSC 32151E personnel. The most noticeable decrease is in performing flightline maintenance. This decreases from 38 percent at the 3-skill level to 29 percent at the 5-skill level (see Table 6). This group performs an average of 95 tasks, some of which are represented in Table 9.

The AFSC 32171E group also consists of 27 individuals accounting for 40 percent of the total AFSC 321X1E sample. This group performs much of the supervisory and administrative functions in the shred, with 63 percent working in either First-Line Supervisor or Workcenter Supervisor jobs. AFSC 32171E personnel still, however, spend much of their total job time performing technical functions, such as flightline maintenance (23 percent) and shop maintenance (11 percent). In accordance with this, this group spends 38 percent of their total job time performing supervisory duties (Duties A through D). They have the broadest job of all the E-shred skill levels, averaging 139 tasks, several of which are listed in Table 10.

In summary, E-shred personnel follow an orderly skill level progression, moving from the more technically-oriented jobs into more supervisory and administrative functions. Seven-skill level personnel are still, however, much involved in technical functions.

G-Shred Skill Level Discussion

The 49 personnel in the G-shred with a 3-skill level designation account for 28 percent of the total AFSC 321X1G sample. Like their E-shred counterparts, these individuals work primarily on the flightline performing technical tasks, such as removing or replacing turret cowlings and .50 caliber M-3 guns on ASG-15 DFCS, and assembling M-3 .50 caliber machine guns. Performing flightline maintenance on ASG-15 DFCS accounts for over 63 percent of their total job time. Another duty taking up a large portion of a 3-skill level's job time is performing maintenance on M-3 .50 caliber machine guns and associated equipment (12 percent). The ASG-15 DFCS Flightline Personnel job contains most of these airmen. This group averages 108 tasks, some of which are listed in Table 11.

Eighty individuals hold a 5-skill level in the G-shred, which accounts for 45 percent of the G-shred sample. Their job is similar to the 3-skill level in that they perform technical flightline work, such as removing or replacing turret cowlings, performing preflight inspections, and troubleshooting malfunctions involving alternating current circuits. They do, however, spend less of their total job time performing maintenance of M-3 .50 caliber machine guns and associated equipment (7 percent) and performing flightline maintenance functions (51 percent). Instead, they spend slightly more time performing administrative functions and shop maintenance functions (see Table 7). This group performs an average of 140 tasks, some of which are represented in Table 12.

TABLE 9

REPRESENTATIVE TASKS PERFORMED BY DAFSC 32151E PERSONNEL

TASKS		PERCENT PERFORMING (N=27)
G212	PERFORM OPERATIONAL CHECKOUTS OF ASG-21 DFCS	85
G207	PERFORM ELECTRICAL HARMONIZATION ON ASG-21 DFCS	85
G208	PERFORM GUN BORESIGHTING ON ASG-21 DFCS	85
F190	TROUBLESHOOT MALFUNCTIONS INVOLVING DIRECT CURRENT CIRCUITS	81
E148	ORDER PARTS BY TELEPHONE	78
F189	TROUBLESHOOT MALFUNCTIONS INVOLVING ALTERNATING CURRENT CIRCUITS	78
G210	PERFORM LIMITED POWER ON (LPO) CHECKS FOR IN-FLIGHT FIRING ON ASG-21 DFCS	78
F167	LACE ELECTRICAL WIRING ASSEMBLIES	78
G205	ARM M-61 GUNS ON B-52H	78
G206	DEARM M-61 GUNS ON B-52H	78
F173	PERFORM MAINTENANCE ON ELECTRICAL CONNECTORS	78
L423	ASSEMBLE M-61 GUNS	78
L424	DISASSEMBLE M-61 GUNS	78
L425	INSPECT M-61 GUNS	78
G252	TROUBLESHOOT MALFUNCTIONS ON ASG-21 DFCS TO LINE REPLACEABLE UNITS (LRU) ON B-52H	74
H277	PERFORM SYSTEM FUNCTIONAL TESTS ON HOT MOCK-UPS	74
L433	PERFORM PERFORMANCE CHECKOUTS ON M-61 GUNS	74
H254	PERFORM BUILT-IN TEST (BIT) PROCEDURES ON HOT MOCK-UPS	74
F180	REMOVE, REPLACE, OR SPLICE ELECTRICAL WIRING	74
G216	PERFORM TURRET LIMIT CHECKS ON ASG-21 DFCS	74
G209	PERFORM HYDRAULIC SERVICING ON ASG-21 DFCS	70
F188	TROUBLESHOOT MALFUNCTIONS IN PRESSURIZATION SYSTEMS	70
E129	ATTACH EQUIPMENT STATUS TAGS OR LABELS	70
G251	TROUBLESHOOT MALFUNCTIONS ON ASG-21 DFCS GUN-LAYING MOUNTS	70
G211	PERFORM MAINTENANCE ON ASG-21 GUN-LAYING MOUNTS	70
F203	TROUBLESHOOT SYSTEM MALFUNCTIONS IN WIRING, OTHER THAN THAT IN LRU	70
F181	REPAIR MULTI-PIN CONNECTORS	70
D106	DEMONSTRATE HOW TO LOCATE TECHNICAL INFORMATION	67
G236	REMOVE OR REPLACE HYDRAULIC POWER SUPPLY (HPS) ON ASG-21 DFCS	67
G219	REMOVE OR REPLACE ANTENNAS ON ASG-21 DFCS	67
G230	REMOVE OR REPLACE FREQUENCY CONVERTER TRANSMITTERS (FCT) ON ASG-21 DFCS	67
F186	TROUBLESHOOT MALFUNCTIONS IN HYDRAULIC SYSTEMS	67
G246	REMOVE OR REPLACE TRACKING CONTROL ASSEMBLY (TCA) ON ASG-21 DFCS	67
G222	REMOVE OR REPLACE CONTROL INDICATORS (CI) ON ASG-21 DFCS	67
G245	REMOVE OR REPLACE SYSTEM CONTROL ASSEMBLY (SCA) ON ASG-21 DFCS	67

TABLE 10

REPRESENTATIVE TASKS PERFORMED BY DAFSC 32171E PERSONNEL

TASKS		PERCENT PERFORMING (N=27)
C97	WRITE APR	93
B24	COUNSEL SUBORDINATES ON PERSONAL OR MILITARY-RELATED PROBLEMS	93
C72	EVALUATE COMPLIANCE WITH WORK STANDARDS	89
C71	EVALUATE COMPLETED MAINTENANCE ACTIONS	89
B64	SUPERVISE DFCS MECHANICS (B-52H (ASG-21 TURRET)) (AFSC 32151E))	89
A7	ESTABLISH WORK PRIORITIES	89
D101	CONDUCT ON-THE-JOB TRAINING (OJT)	85
B54	INTERPRET TO WIRING OR CIRCUIT DIAGRAMS FOR SUBORDINATES	85
F170	OPERATE NONPOWERED AEROSPACE GROUND EQUIPMENT	85
E148	ORDER PARTS BY TELEPHONE	85
B56	MAINTAIN STATUS BOARDS, GRAPHS, OR CHARTS	85
B60	SUPERVISE APPRENTICE DEFENSIVE FIRE CONTROL SYSTEM (DFCS) MECHANICS (B-52H (ASG-21 TURRET)) (AFSC 32131E)	81
E153	POST ENTRIES ON MAINTENANCE DATA COLLECTION FORMS	81
B53	INTERPRET POLICIES, DIRECTIVES, OR PROCEDURES FOR SUBORDINATES	81
C75	EVALUATE NEWLY ASSIGNED PERSONNEL	81
B20	BRIEF PERSONNEL, OTHER THAN AIRCREWS	81
F167	LACE ELECTRICAL WIRING ASSEMBLIES	78
C82	EVALUATE SERVICEABILITY OF EQUIPMENT OR SUPPLIES	78
C74	EVALUATE MAINTENANCE OF EQUIPMENT	78
G212	PERFORM OPERATIONAL CHECKOUTS OF ASG-21 DFCS	78
D105	COUNSEL TRAINEES ON TRAINING PROGRESS	78
G205	ARM M-61 GUNS ON B-52H	78
G206	DEARM M-61 GUNS ON B-52H	78
B25	DEVELOP OR IMPROVE WORK METHODS OR PROCEDURES	78
D117	MAINTAIN TRAINING RECORDS	78
D106	DEMONSTRATE HOW TO LOCATE TECHNICAL INFORMATION	78
E129	ATTACH EQUIPMENT STATUS TAGS OR LABELS	78
F171	PERFORM ACCEPTANCE CHECK INSPECTIONS	78
G223	REMOVE OR REPLACE CONTROLLED LINE PLATFORMS (CLP) ON ASG-21 DFCS	74
G209	PERFORM HYDRAULIC SERVICING ON ASG-21 DFCS	74
A14	PLAN OR SCHEDULE WORK ASSIGNMENTS	74
F166	DRIVE VEHICLES FOR DFCS MAINTENANCE SUPPORT	74
E159	PREPARE WORK ORDERS	74
F188	TROUBLESHOOT MALFUNCTIONS IN PRESSURIZATION SYSTEMS	74
E133	COMPLETE STATUS TAGS FOR CONDITION OF PROPERTY	74

TABLE 11

REPRESENTATIVE TASKS PERFORMED BY DAFSC 32131G PERSONNEL

TASKS		PERCENT PERFORMING (N=49)
I355	REMOVE OR REPLACE TURRET COWLINGS ON ASG-15 DFCS	98
I312	REMOVE OR REPLACE .50 CALIBER M-3 GUNS ON ASG-15 DFCS	94
I315	REMOVE OR REPLACE AMMUNITION CHUTES ON ASG-15 DFCS	94
I349	REMOVE OR REPLACE SHOCK MOUNTS ON ASG-15 DFCS	94
I311	REMOVE OR REPLACE .50 CALIBER M-3 GUN HEATERS ON ASG-15 DFCS	94
I314	REMOVE OR REPLACE AMMUNITION BOOSTERS ON ASG-15 DFCS	94
I296	PERFORM PREFLIGHT INSPECTIONS ON ASG-15 DFCS	92
I297	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS ARMAMENT SYSTEM HYDRAULICS	92
E148	ORDER PARTS BY TELEPHONE	90
I284	PERFORM AMMUNITION ARMING PROCEDURES ON ASG-15 DFCS	90
I348	REMOVE OR REPLACE SERVO CENTRALS ON ASG-15 DFCS	90
I330	REMOVE OR REPLACE INTEGRATING GYROS ON ASG-15 DFCS	90
I295	PERFORM PHASE III INSPECTIONS ON ASG-15 DFCS	90
I294	PERFORM PHASE II INSPECTIONS ON ASG-15 DFCS	90
I325	REMOVE OR REPLACE CONTROL HANDLES ON ASG-15 DFCS	90
I365	TROUBLESHOOT MALFUNCTIONS IN RADAR TRACK RADAR OR RANGE MODE ON ASG-15 DFCS	90
K406	ASSEMBLE M-3 .50 CALIBER MACHINE GUNS	88
K407	DISASSEMBLE M-3 .50 CALIBER MACHINE GUNS	88
I322	REMOVE OR REPLACE COMPUTER CENTRALS ON ASG-15 DFCS	88
I285	PERFORM AMMUNITION DEARMING PROCEDURES ON ASG-15 DFCS	88
I344	REMOVE OR REPLACE SEARCH ANTENNAS ON ASG-15 DFCS	88
I369	TROUBLESHOOT MALFUNCTIONS IN SYSTEM OPERATION ON ASG-15 DFCS	88
F179	REMOVE OR REPLACE CHEMICAL DRYER CARTRIDGES	88
I364	TROUBLESHOOT MALFUNCTIONS IN PNEUMATIC SYSTEMS ON ASG-15 DFCS	88
I293	PERFORM PHASE I INSPECTIONS ON ASG-15 DFCS	88
I363	TROUBLESHOOT MALFUNCTIONS IN ON MODE ON ASG-15 DFCS	88
I346	REMOVE OR REPLACE SEARCH PULSE SWEEP GENERATORS (PSG) ON ASG-15 DFCS	88
I340	REMOVE OR REPLACE RADAR INDICATORS ON ASG-15 DFCS	88
I288	PERFORM FAST OPERATIONAL CHECKOUTS ON ASG-15 DFCS	86
I298	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS ARMAMENT SYSTEM PNEUMATICS	86
I353	REMOVE OR REPLACE TRACK FREQUENCY CONVERTER TRANSMITTERS ON ASG-15 DFCS	86
I370	TROUBLESHOOT MALFUNCTIONS IN TRACK RADAR OPERATION ON ASG-15 DFCS	86
I324	REMOVE OR REPLACE CONTROL CENTRALS ON ASG-15 DFCS	86
F190	TROUBLESHOOT MALFUNCTIONS INVOLVING DIRECT CURRENT CIRCUITS	86
I321	REMOVE OR REPLACE COMPUTER CENTRAL SUBASSEMBLIES ON ASG-15 DFCS	86

TABLE 12

REPRESENTATIVE TASKS PERFORMED BY DAFSC 32151G PERSONNEL

TASKS		PERCENT PERFORMING (N=80)
E148	ORDER PARTS BY TELEPHONE	91
I355	REMOVE OR REPLACE TURRET COWLINGS ON ASG-15 DFCS	90
F189	TROUBLESHOOT MALFUNCTIONS INVOLVING ALTERNATING CURRENT CIRCUITS	90
F190	TROUBLESHOOT MALFUNCTIONS INVOLVING DIRECT CURRENT CIRCUITS	90
I300	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS SEARCH RADAR SYSTEM POWER SUPPLIES	90
I305	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS TRACK RADAR SYSTEM POWER SUPPLIES	90
I315	REMOVE OR REPLACE AMMUNITION CHUTES ON ASG-15 DFCS	90
I311	REMOVE OR REPLACE .50 CALIBER M-3 GUN HEATERS ON ASG-15 DFCS	90
I296	PERFORM PREFLIGHT INSPECTIONS ON ASG-15 DFCS	89
I310	PERFORM TRACKING CHANNELS (LOCK-ON) CHECKS AND ADJUSTMENTS ON ASG-15 DFCS	89
F180	REMOVE, REPLACE, OR SPLICE ELECTRICAL WIRING	89
I297	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS ARMAMENT SYSTEM HYDRAULICS	89
I304	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS SEARCH RADAR SYSTEM RADAR INDICATORS	89
I284	PERFORM AMMUNITION ARMING PROCEDURES ON ASG-15 DFCS	89
I302	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS SEARCH RADAR SYSTEM FREQUENCY CONVERTER-TRANSMITTERS	89
I312	REMOVE OR REPLACE .50 CALIBER M-3 GUNS ON ASG-15 DFCS	89
I314	REMOVE OR REPLACE AMMUNITION BOOSTERS ON ASG-15 DFCS	89
I288	PERFORM FAST OPERATIONAL CHECKOUTS ON ASG-15 DFCS	88
I299	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS ARMAMENT SYSTEM CENTRALS AND COMPONENTS	88
I298	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS ARMAMENT SYSTEM PNEUMATICS	88
I301	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS SEARCH RADAR SYSTEM MODULATORS	88
I307	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS TRACK RADAR SYSTEM MODULATORS	88
I308	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS TRACK RADAR SYSTEM FREQUENCY CONVERTER-TRANSMITTERS	88
I309	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS TRACK RADAR SYSTEM TARGET POSITION COMPUTERS	88
F165	BRIEF OR DEBRIEF AIRCREWS	88
I303	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS SEARCH RADAR SYSTEM PULSE SWEEP GENERATORS	88
F173	PERFORM MAINTENANCE ON ELECTRICAL CONNECTORS	88
I345	REMOVE OR REPLACE SEARCH FREQUENCY CONVERTER TRANSMITTERS ON ASG-15 DFCS	88
I343	REMOVE OR REPLACE RADAR WAVEGUIDES ON ASG-15 DFCS	88
F188	TROUBLESHOOT MALFUNCTIONS IN PRESSURIZATION SYSTEMS	86
I285	PERFORM AMMUNITION DEARMING PROCEDURES ON ASG-15 DFCS	86

The 49 airmen holding DAFSC 32171G perform both supervisory and technical duties. While they do spend a high percentage of their total job time performing flightline maintenance (24 percent), over 40 percent of their total job time is spent performing supervisory tasks, such as supervising DFCS mechanics (AFSC 32131G) and interpreting TO wiring or circuit diagrams for subordinates. Table 5 shows many of these individuals working in either First-Line or Workcenter Supervisors' jobs. Notice, however, that many 7-skill level personnel still work in the technical jobs of the shred. They average the most tasks performed of any G-shred skill level, averaging 146 tasks, some of which are listed in Table 13.

AFR 39-1 SPECIALTY DESCRIPTIONS

Occupational survey data are used to examine classification issues. By comparing those jobs performed in a career ladder to the specialty descriptions, judgments are made about the descriptions' completeness and accuracy.

AFR 39-1 Specialty Descriptions are intended to give a very broad description of the responsibilities held by the various skill levels within a career ladder. When compared with the survey data, the AFR 39-1 Specialty Description for the Defensive Fire Control Systems Mechanic (AFSC 32111, 32131, 32151), dated January 1982, accurately reflects the duties and tasks being accomplished at these skill levels. In general, these personnel are inspecting, analyzing, maintaining, and repairing aircraft defensive FCS components and test equipment. One possible addition to the specialty description would be including operating nonpowered aerospace ground equipment, since over 68 percent of 3- and 5-skill level personnel perform this task.

The AFR 39-1 Specialty Description for Defensive Fire Control Systems Technician (AFSC 32171) is also generally supported by the survey data. The duties and tasks being performed by 7-skill level personnel are both supervisory and technical in nature. The Specialty Description accurately reflects both aspects of a 7-skill level's responsibilities. Like the 1-, 3-, and 5-skill level Specialty Descriptions, however, there is no mention of operating nonpowered aerospace ground equipment, even though 75 percent of all 7-skill level personnel perform this task.

TRAINING ANALYSIS

Information gathered with the occupational survey is used to assist in the development or evaluation of formal training programs or training documents, such as the Specialty Training Standard (STS) and Plan of Instruction (POI). A particularly important factor which may be used for this purpose is the percentage of an appropriate group, such as first-enlistment (1-48 months TAFMS) personnel, performing tasks. In addition, the secondary task factors

TABLE 13

REPRESENTATIVE TASKS PERFORMED BY DAFSC 32171G PERSONNEL

TASKS		PERCENT PERFORMING (N=49)
B24	COUNSEL SUBORDINATES ON PERSONAL OR MILITARY-RELATED PROBLEMS	88
B54	INTERPRET TO WIRING OR CIRCUIT DIAGRAMS FOR SUBORDINATES	84
C97	WRITE APR	84
D106	DEMONSTRATE HOW TO LOCATE TECHNICAL INFORMATION	82
C71	EVALUATE COMPLETED MAINTENANCE ACTIONS	80
D111	EVALUATE ON-THE-JOB TRAINEE PROGRESS	80
B53	INTERPRET POLICIES, DIRECTIVES, OR PROCEDURES FOR SUBORDINATES	78
B25	DEVELOP OR IMPROVE WORK METHODS OR PROCEDURES	78
C74	EVALUATE MAINTENANCE OF EQUIPMENT	76
D117	MAINTAIN TRAINING RECORDS	76
C72	EVALUATE COMPLIANCE WITH WORK STANDARDS	73
D105	COUNSEL TRAINEES ON TRAINING PROGRESS	73
D101	CONDUCT ON-THE-JOB TRAINING (OJT)	73
E153	POST ENTRIES ON MAINTENANCE DATA COLLECTION FORMS	73
F189	TROUBLESHOOT MALFUNCTIONS INVOLVING ALTERNATING CURRENT CIRCUITS	73
F190	TROUBLESHOOT MALFUNCTIONS INVOLVING DIRECT CURRENT CIRCUITS	73
B63	SUPERVISE DFCS MECHANICS (B-52G (ASG-15 TURRETS)) (AFSC 32151G)	71
B20	BRIEF PERSONNEL, OTHER THAN AIRCREWS	71
A7	ESTABLISH WORK PRIORITIES	71
F173	PERFORM MAINTENANCE ON ELECTRICAL CONNECTORS	71
C94	REVIEW INSPECTION REPORTS	69
F170	OPERATE NONPOWERED AEROSPACE GROUND EQUIPMENT	69
F203	TROUBLESHOOT SYSTEM MALFUNCTIONS IN WIRING, OTHER THAN THAT IN LRU	69
F191	TROUBLESHOOT MALFUNCTIONS TO DEFECTIVE AMPLIFIERS	69
F204	UPDATE JOB CONTROL ON ESTIMATED TIME IN COMMISSION (ETIC) OF MAINTENANCE JOBS	67
B61	SUPERVISE APPRENTICE DFCS MECHANICS (B-52G (ASG-15 TURRETS)) (AFSC 32131G)	67
A14	PLAN OR SCHEDULE WORK ASSIGNMENTS	67
E148	ORDER PARTS BY TELEPHONE	67
F200	TROUBLESHOOT MALFUNCTIONS TO DEFECTIVE RELAYS	67
F172	PERFORM MAINTENANCE ON CABLES	67
F188	TROUBLESHOOT MALFUNCTIONS IN PRESSURIZATION SYSTEMS	67
F186	TROUBLESHOOT MALFUNCTIONS IN HYDRAULIC SYSTEMS	67
K413	INSPECT M-3 .50 CALIBER MACHINE GUNS	65
K411	INSPECT ASG-15 DEMAND AND INTERMEDIATE AMMUNITION BOOSTERS	65
C75	EVALUATE NEWLY ASSIGNED PERSONNEL	63

of training emphasis and task difficulty ratings (as explained in the Task Factor Administration section) provide useful information. Technical school personnel have matched nonmanagerial inventory tasks to appropriate STS or POI sections to facilitate use of occupational survey data to evaluate the relevance and completeness of these documents. Computer listings which display the STS or POI with matched tasks and survey data are used in the analysis to show which sections of the STS or POI are most relevant to the career ladder. They may also be used to show which tasks not matched to these documents may need to be included due to the extent to which they are performed in the career ladder and their importance to training. To aid in any further detailed review of training documents, these computer displays have been forwarded to the technical school. In addition to a summary of that information, this section contains an analysis of the first-enlistment personnel in each AFSC 321X1E/G career ladder shred. Figure 2 shows the distribution of first-enlistment personnel across the job groups discussed in the SPECIALTY JOBS section of this report.

Training Emphasis and Task Difficulty Data

The objective of collecting TE and TD ratings is to develop rank-ordered listings of tasks in terms of importance for first-term training and in terms of difficulty. For this occupational survey, separate TE and TD ratings have been compiled for each shred due to their different rating policies. These lists of inventory tasks are included in both the Analysis and Training Extracts, with TE and TD ratings accompanying each inventory task displayed in the Training Extract. (For a more detailed explanation of both types of ratings, see Task Factor Administration in the SURVEY METHODOLOGY section.) Tasks performed by moderate to high percentages of personnel may warrant resident technical training. TE and TD ratings, composed of the opinions of experienced career ladder personnel, are secondary factors that may assist training developers in deciding which tasks should be emphasized for entry-level training. Those tasks receiving high task factor ratings but performed by low percentages of first-enlistment personnel may be more appropriately planned for OJT programs within the career ladder. Low task factor ratings may highlight tasks best left out of training for new personnel, but this decision must be weighed against percentages of personnel performing the tasks and other task considerations.

AFS 321X1E Training Issues

A. AFSC 321X1E First-Enlistment Personnel. There are 23 E-shred first-enlistment personnel accounting for 34 percent of the total E-shred sample. Sixty-six percent of these first-termers primarily perform flightline functions. The remainder perform mostly shop functions. Specifically, they perform tasks such as hydraulic servicing on ASG-21 DFCS, troubleshooting malfunctions involving direct current circuits, and performing operational checkouts on ASG-21 DFCS. They perform an average of 75 tasks, some of which are listed in Table 14.

AFSC 321X1E/G
FIRST-ENLISTMENT SPECIALTY JOBS

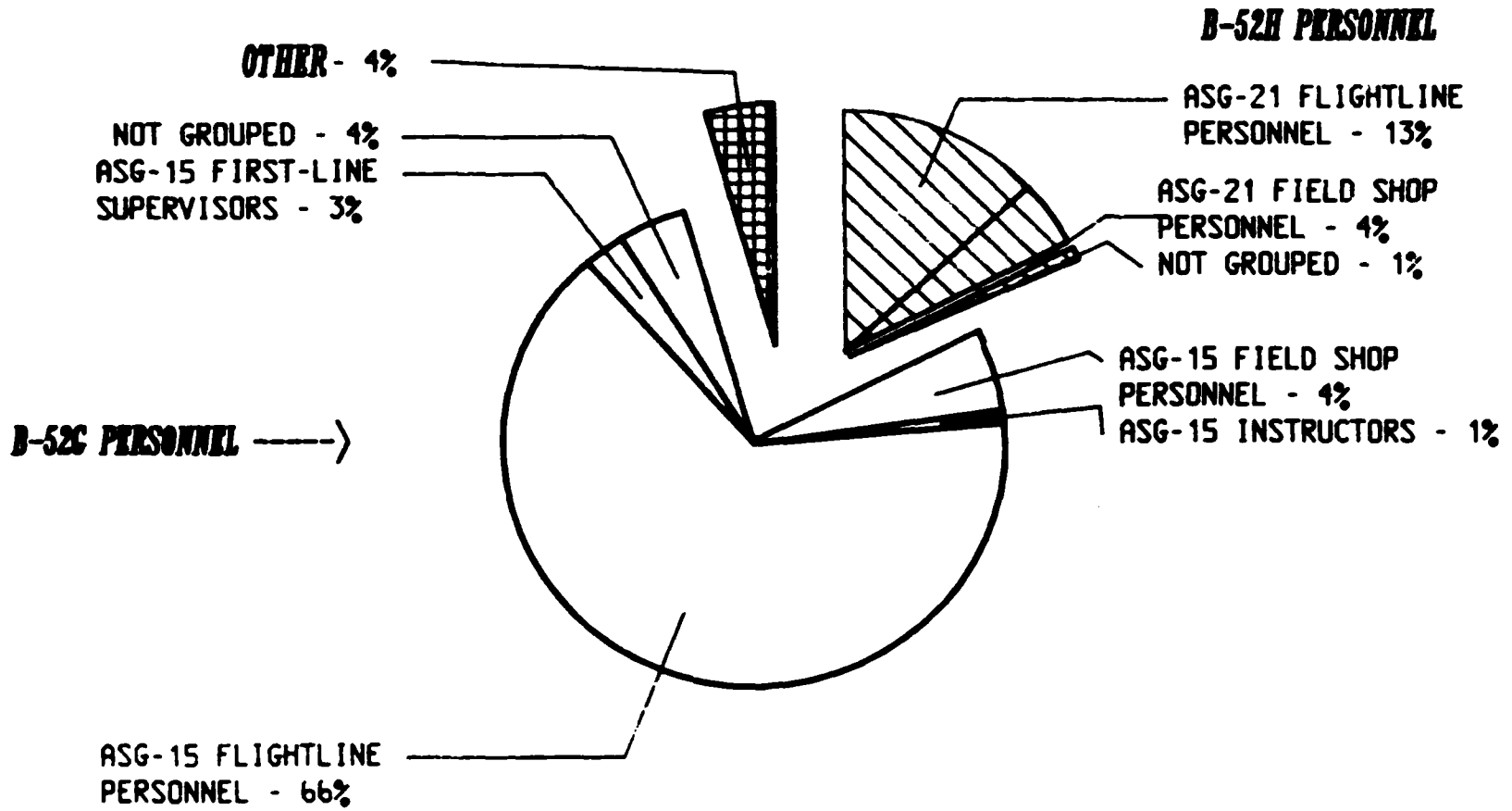

Fig 2

TABLE 14

REPRESENTATIVE TASKS PERFORMED BY FIRST-ENLISTMENT (1-48 MONTHS TAFMS) AFSC 321X1E PERSONNEL

TASKS		PERCENT PERFORMING (N=23)
F190	TROUBLESHOOT MALFUNCTIONS INVOLVING DIRECT CURRENT CIRCUITS	91
F189	TROUBLESHOOT MALFUNCTIONS INVOLVING ALTERNATING CURRENT CIRCUITS	91
G209	PERFORM HYDRAULIC SERVICING ON ASG-21 DFCS	83
G212	PERFORM OPERATIONAL CHECKOUTS OF ASG-21 DFCS	83
E148	ORDER PARTS BY TELEPHONE	83
F173	PERFORM MAINTENANCE ON ELECTRICAL CONNECTORS	83
G219	REMOVE OR REPLACE ANTENNAS ON ASG-21 DFCS	78
G207	PERFORM ELECTRICAL HARMONIZATION ON ASG-21 DFCS	78
G206	DEARM M-61 GUNS ON B-52H	78
F188	TROUBLESHOOT MALFUNCTIONS IN PRESSURIZATION SYSTEMS	78
G208	PERFORM GUN BORESIGHTING ON ASG-21 DFCS	78
G236	REMOVE OR REPLACE HYDRAULIC POWER SUPPLY (HPS) ON ASG-21 DFCS	78
G230	REMOVE OR REPLACE FREQUENCY CONVERTER TRANSMITTERS (FCT) ON ASG-21 DFCS	78
G222	REMOVE OR REPLACE CONTROL INDICATORS (CI) ON ASG-21 DFCS	78
G246	REMOVE OR REPLACE TRACKING CONTROL ASSEMBLY (TCA) ON ASG-21 DFCS	78
F167	LACE ELECTRICAL WIRING ASSEMBLIES	78
G223	REMOVE OR REPLACE CONTROLLED LINE PLATFORMS (CLP) ON ASG-21 DFCS	78
G245	REMOVE OR REPLACE SYSTEM CONTROL ASSEMBLY (SCA) ON ASG-21 DFCS	78
F203	TROUBLESHOOT SYSTEM MALFUNCTIONS IN WIRING, OTHER THAN THAT IN LRU	78
G235	REMOVE OR REPLACE GUN FEEDERS ON ASG-21 DFCS	78
F180	REMOVE, REPLACE, OR SPLICE ELECTRICAL WIRING	78
G228	REMOVE OR REPLACE FIRE CONTROL SYSTEM CONTROLS (HAND CONTROL) ON ASG-21 DFCS	78
F181	REPAIR MULTI-PIN CONNECTORS	78
G244	REMOVE OR REPLACE RADOMES ON ASG-21 DFCS	74
G205	ARM M-61 GUNS ON B-52H	74
G252	TROUBLESHOOT MALFUNCTIONS ON ASG-21 DFCS TO LINE REPLACEABLE UNITS (LRU) ON B-52H	74
F186	TROUBLESHOOT MALFUNCTIONS IN HYDRAULIC SYSTEMS	74
G211	PERFORM MAINTENANCE ON ASG-21 GUN-LAYING MOUNTS	74
G240	REMOVE OR REPLACE M-61 GUN B-52HS	74
F165	BRIEF OR DEBRIEF AIRCREWS	74
G233	REMOVE OR REPLACE GUN COVER BOOTS ON ASG-21 DFCS	74
G220	REMOVE OR REPLACE BALLISTIC COMPUTERS (BC) ON ASG-21 DFCS	74
G234	REMOVE OR REPLACE GUN DRIVE MOTORS ON ASG-21 DFCS	74
G210	PERFORM LIMITED POWER ON (LPO) CHECKS FOR IN-FLIGHT FIRING ON ASG-21 DFCS	70
G217	PERFORM 100-DAY M-61 GUN INSPECTIONS ON B-52H	70

B. AFSC 321X1E Equipment. Personnel in AFSC 321X1E use many different types of equipment in performing their jobs. Survey data can be very useful in determining which equipment is most used on the job and, thus, which need greater emphasis for training. Examining equipment usage for first-termers and how it changes as experience increases is one way this is done. This will determine which equipment should be specified for training, and also show utilization patterns. One would expect that as experience increases, duties become more supervisory/administrative and less hands-on. Thus, the more experienced one becomes, the less he will utilize equipment. Table 15 lists examples of equipment utilized by first term, second term, and career groups. Many of these examples first show an increase in utilization of equipment from the first term to the second term, and then the expected decrease. Also notice, however, that even with an increase in experience, very senior personnel still utilize a great deal of equipment.

Table 15 displays those pieces of equipment utilized by 50 percent or more of first-enlistment personnel. Equipment utilized by 50 percent or more of first-term airmen should receive hands-on training in the basic course. A full computer listing of all equipment items and the associated percent members utilizing is supplied in a Training Extract to this report. This Extract is supplied to all training and utilization personnel, as well as other interested users who require this information.

C. AFSC 321X1E Specialty Training Standard (STS). An STS is intended to provide comprehensive coverage of tasks performed by career ladder personnel. To evaluate the effectiveness of the AFSC 321X1E STS, dated October 1983 (with changes 1, 2, and 3), STS sections were compared to survey data. Sections containing managerial, general information, or knowledge areas were not reviewed. In addition to examining how well survey data supported STS items, analysis also explored which areas might need to be included in the STS, based on survey findings.

Most performance items in the STS were supported by survey data. Several STS items, however, were matched to tasks with fewer than 20 percent of E-shred members performing them. All these items deal with troubleshooting basic circuits (see Table 16). Subject-matter experts should consider eliminating these items due to low percent members performing. Several other items, although supported by both high percent first-termers performing and high training emphasis and task difficulty ratings, do not have a proficiency code at the 3-skill level so as to allow for inclusion in a training course. Table 17 gives a listing of some of these STS items. Subject-matter experts should examine these items to ascertain whether the proficiency codes should be changed to a knowledge or performance coding.

While most performance items were supported by survey data, several areas need to be examined in order to make a more comprehensive and useful document. In accordance with Air Force Regulation 8-13, STSs need to be specific. A more careful examination of tasks performed in the field needs to be done to meet this requirement. Examples of items that may need to be more specific include item 111, Remove Components, and 11J, Install Components. Supervisory and training functions also do not have any items in the STS. Subject-matter experts should evaluate these and other deficiencies to bring the STS in line with the guidelines stated in AFR 8-13, ATC Supplement 1.

TABLE 15

EXAMPLES OF EQUIPMENT USED BY AFSC 321X1E TAFMS GROUPS

EQUIPMENT	PERCENT MEMBERS UTILIZING 1-48	49-96	97+
AMMO CHUTE GAUGE	78	77	83
BARREL EROSION GAUGE	70	85	87
BORESITE TELESCOPE	74	92	86
BREAK-OUT PANEL KIT	74	46	43
DIGITAL VOLTMETER (DVM)	100	77	89
E831 TEST STATION	65	85	74
E832 TEST STATION	61	85	69
E833 TEST STATION	61	85	71
FEEDER STEP GAUGE	57	62	69
FEEDER TIMER GAUGE	65	85	83
FREQUENCY COUNTER	57	85	71
GUN CONTROL AND FIRE CONTROL SYSTEM CONTROL TEST SET	57	92	71
HARMONIZATION FIXTURE	83	92	94
HEADSPACE GAUGE	61	62	89
HYDRAULIC REPLENISHING RIG	83	62	83
MULTIMETER	96	100	94
OSCILLOSCOPE	91	92	91
POWER SUPPLY	52	77	71
PRESSURIZATION TEST SET	87	69	80
SYSTEM TEST GROUP DEFENSIVE FIRE CONTROL (HOT MOCK-UP)	87	92	77
TORQUE WRENCH	100	100	89

TABLE 16

AFSC 321X1E STS ITEMS NOT SUPPORTED BY OSR DATA

STS REFERENCE/TASKS	1ST ENL (N=23)	5-SKILL LEVEL (N=27)	7-SKILL LEVEL (N=27)	321X1E TRNG EMPH*	321X1E TASK DIFF**
15F(1) TROUBLESHOOT DIGITAL GATES 2b 2b 3b					
F194 TROUBLESHOOT MALFUNCTIONS TO DEFECTIVE DIGITAL GATES	9%	11%	15%	1.77	6.56
15H TROUBLESHOOT INDUCTOR 2b 2b 3b					
F197 TROUBLESHOOT MALFUNCTIONS TO DEFECTIVE INDUCTORS	4%	4%	15%	1.73	6.22
15I TROUBLESHOOT CAPACITOR 2b 2b 3b					
F192 TROUBLESHOOT MALFUNCTIONS TO DEFECTIVE CAPACITORS	4%	7%	15%	1.64	5.78
15L TROUBLESHOOT TRANSISTOR 2b 2b 3b					
F202 TROUBLESHOOT MALFUNCTIONS TO DEFECTIVE TRANSISTORS	9%	15%	19%	1.95	5.91

TABLE 16 (CONTINUED)

AFSC 321X1E STS ITEMS NOT SUPPORTED BY OSR DATA

STS REFERENCE/TASKS		1ST ENL (N=23)	5-SKILL LEVEL (N=27)	7-SKILL LEVEL (N=27)	321X1E TRNG EMPH*	321X1E TASK DIFF**
15M	TROUBLESHOOT CLIPPER (LIMITER) AND CLAMPER 2b 2b 3b					
	F193 TROUBLESHOOT MALFUNCTIONS TO DEFECTIVE CLIPPERS (UNITER) OR CLAMPERS	4%	7%	11%	1.45	6.05
15N	TROUBLESHOOT SINUSOIDAL OSCILLATOR 2b 2b 3b					
	F198 TROUBLESHOOT MALFUNCTIONS TO DEFECTIVE INSOIDAL OSCILLATORS	0%	0%	15%	1.18	6.27
15O	TROUBLESHOOT MULTIVIBRATORS 2b 2b 3b					
	F199 TROUBLESHOOT MALFUNCTIONS TO DEFECTIVE MULTIVIBRATORS	9%	7%	15%	1.86	6.27

* Training Emphasis has an average of 1.64 and a standard deviation of 2.11
** Task Difficulty has an average of 5.00 and a standard deviation of 1.00

TABLE 17

EXAMPLES OF AFSC 321X1E STS ITEMS WITH HIGH FIRST-ENLISTMENT PERCENT PERFORMING BUT NOT CODED AT THE 3-SKILL LEVEL

STS REFERENCE/TASKS			1ST ENL (N=23)	5-SKILL LEVEL (N=27)	7-SKILL LEVEL (N=27)	321X1E TRNG EMPH*	321X1E TASK DIFF**
11C	FILL AND BLEED THE HYDRAULIC POWER SUPPLY 2b/- 3c 4c						
	G212	PERFORM OPERATIONAL CHECKOUTS OF ASG-21 DFCS	83%	85%	76%	6.95	5.06
	G209	PERFORM HYDRAULIC SERVICING ON ASG-21 DFCS	83%	70%	74%	6.86	4.25
	G236	REMOVE OR REPLACE HYDRAULIC POWER SUPPLY (HPS) ON ASG-21 DFCS	78%	67%	70%	5.77	4.75
	G237	REMOVE OR REPLACE HYDRAULIC SERVO VALVES ON ASG-21 DFCS	52%	52%	59%	4.91	6.72
11F	PERFORM FCS PHASE INSPECTIONS - 3c 4c						
	G211	PERFORM MAINTENANCE ON ASG-21 GUN-LAYING MOUNTS	74%	70%	70%	6.14	6.43
	G214	PERFORM PHASE II INSPECTIONS ON ASG-21 DFCS	65%	67%	63%	4.77	4.94
	G213	PERFORM PHASE I INSPECTIONS ON ASG-21 DFCS	70%	67%	63%	4.73	4.77
	G215	PERFORM PHASE III INSPECTIONS ON ASG-21 DFCS	70%	67%	63%	4.68	4.60

TABLE 17 (CONTINUED)

EXAMPLES OF AFSC 321X1E STS ITEMS WITH HIGH FIRST-ENLISTMENT PERCENT PERFORMING BUT NOT CODED AT THE 3-SKILL LEVEL

STS REFERENCE/TASKS			1ST ENL (N=23)	5-SKILL LEVEL (N=27)	7-SKILL LEVEL (N=27)	321X1E TRNG EMPH*	321X1E TASK DIFF**
111	REMOVE COMPONETS - 3c 4c						
	L430	PERFORM MAINTENANCE ON M-61 GUNS	65%	63%	56%	6.95	5.47
	G240	REMOVE OR REPLACE M-61 GUN ON B-52HS	74%	63%	67%	6.55	5.82
	G236	REMOVE OR REPLACE HYDRAULIC POWER SUPPLY (HPS) ON ASG-21 DFCS	78%	67%	70%	5.77	4.75
	G219	REMOVE OR REPLACE ANTENNAS ON ASG-21 DFCS	78%	67%	70%	5.73	4.58
12A(6)	AIR DATA SYSTEM TEST SET - 3c 4c						
	H257	PERFORM IN-SHOP MAINTENANCE ON ASG-21 AIR DATA COMPUTERS	39%	48%	52%	3.77	4.41
13C(1)	E831 TEST STATION - 3c 4c						
	H274	PERFORM OPERATIONAL ASSURANCE/FAULT ISOLATION (OAFI) TESTS ON E-831 TEST STATIONS	44%	56%	59%	5.36	4.87
	H279	TROUBLESHOOT MALFUNCTIONS ON E-831 TEST STATIONS	30%	41%	44%	4.14	7.69

* Training Emphasis has an average of 1.64 and a standard deviation of 2.11
** Task Difficulty has an average of 5.00 and a standard deviation of 1.00

An additional area of analysis involves examining tasks not matched to any item in the STS. Unreferenced tasks performed by at least 20 percent of a major group, such as first-enlistment personnel, are performed to an extent great enough to be considered for inclusion in the STS. Additionally, tasks with high TE or TD ratings should be examined for possible STS inclusion. The top unreferenced tasks centered around performance involving ASG-21 gun feeders and ammunition chutes. Examples of these and other unreferenced tasks are listed in Table 18, along with the percentage of first-enlistment and 5- and 7-skill level personnel performing them and task factor ratings.

D. AFSC 321X1E Plan of Instruction (POI). This analysis examines the POI for Course G3ABR32131E. The course deals with isolating unit malfunctions, maintaining defensive fire control system units and readying these units for operational missions, and completing maintenance and inspection forms on B-52H DFCS. Fundamentals of electronics, data flow and functional loop analysis, Air Force technical orders, manuals, and other maintenance publications are also taught. Based on assistance from training specialists at Lowry AFB, the POI was matched to survey task statements. Computer printouts were then generated to display the results of the matching for use in this analysis and for a detailed review of training. A Plan of Instruction generally contains two types of objectives: knowledge objectives and performance objectives. Since task statements are relevant to performance objectives rather than knowledge objectives, only performance objectives are evaluated in this analysis.

The POI generally is well supported by survey data. Only one objective, X 2C, Perform maintenance checkout procedures for the gun control on the gun control and FCS control test set, was not supported by survey data. The task matched to this objective has a TE rating of 3.04 and is performed by only 4 percent of AFSC 321X1E first-enlistment personnel. Subject-matter experts should examine this objective to determine if it should remain in the POI.

As with the STS, another part of the POI analysis involves examining tasks not matched to any POI objectives. Based on percentages of first-termers performing them and high TE ratings, several tasks should be considered for inclusion in the POI. These tasks are performed by very high percentages of first-enlistment personnel and also have high TE ratings. Table 19 lists examples of these tasks. Some of these tasks deal with hydraulics, gun feeders, and ammunition chutes. Training specialists should review unreferenced tasks with more than 30 percent of AFSC 321X1E personnel performing them to determine if they should be included in common resident course training. A complete listing is contained in the Training Extract, which has been forwarded to the technical training school.

E. AFSC 321X1E Electronic Principles. Because of the E-shred's work with electronics, an additional source of information for AFSC 321X1E (and AFSC 321X1G) training developers is the Electronic Principles Inventory (EPI). The EPI is a 1,366 item, knowledge-based inventory which identifies the range of

TABLE 18

EXAMPLES OF TASKS NOT REFERENCED TO AFSC 321X1E STS

TASKS		1ST ENLISTMENT (N=23)	5-SKILL LEVEL (N=27)	7-SKILL LEVEL (N=27)	321X1E TRNG EMPH*
L432	PERFORM PERFORMANCE CHECKOUTS ON ASG-21 GUN FEEDERS	61%	59%	59%	6.45
L429	PERFORM MAINTENANCE ON ASG-21 GUN FEEDERS	61%	63%	52%	6.23
L431	PERFORM PERFORMANCE CHECKOUTS ON ASG-21 AMMUNITION CHUTES	57%	59%	56%	5.77
F170	OPERATE NONPOWERED AEROSPACE GROUND EQUIPMENT	39%	52%	85%	4.45
F184	TROUBLESHOOT ELECTRONIC COUNTERMEASURES SYSTEM (ECMS) INTERFERENCES	52%	56%	70%	4.45
F166	DRIVE VEHICLES FOR DFCS MAINTENANCE SUPPORT	65%	52%	74%	3.59
F167	LACE ELECTRICAL WIRING ASSEMBLIES	78%	76%	78%	3.54

* Training Emphasis has an average of 1.64 and a standard deviation of 2.11

TABLE 19

EXAMPLES OF TASKS NOT REFERENCED TO POI G3ABR32131E
WITH 30 PERCENT OR MORE FIRST-TEPMERS PERFORMING

TASKS		321X1E 1ST ENL PERCENT PERFORMING (N=23)	321X1E TRNG EMPH*	321X1E TASK DIFF**
G209	PERFORM HYDRAULIC SERVICING ON ASG-21 DFCS	83%	6.86	4.25
F203	TROUBLESHOOT SYSTEM MALFUNCTIONS IN WIRING, OTHER THAN THAT IN LRU	78%	6.73	6.54
G240	REMOVE OR REPLACE M-61 GUN ON B-52HS	74%	6.55	5.82
L432	PERFORM PERFORMANCE CHECKOUTS ON ASG-21 GUN FEEDERS	61%	6.45	4.40
L429	PERFORM MAINTENANCE ON ASG-21 GUN FEEDERS	61%	6.23	5.12
G236	REMOVE OR REPLACE HYDRAULIC POWER SUPPLY (HPS) ON ASG-21 DFCS	78%	5.77	4.75
L431	PERFORM PERFORMANCE CHECKOUTS ON ASG-21 AMMUNITION CHUTES	57%	5.77	4.02
G219	REMOVE OR REPLACE ANTENNAS ON ASG-21 DFCS	78%	5.73	4.58
G246	REMOVE OR REPLACE TRACKING CONTROL ASSEMBLY (TCA) ON ASG-21 DFCS	78%	5.64	3.56
G245	REMOVE OR REPLACE SYSTEM CONTROL ASSEMBLY (SCA) ON ASG-21 DFCS	78%	5.59	3.52
H258	PERFORM IN-SHOP MAINTENANCE ON ASG-21 ANTENNAS	65%	5.59	5.09

* Training Emphasis has an average of 1.64 and a standard deviation of 2.11
** Task Difficulty has an average of 5.00 and a standard deviation of 1.00

electronic principles personnel must understand to perform any electronics-oriented job. The difference between OSR data and EPI data relates to the type of inventory items used and the type of data collected for those items. Occupational survey reports use a performance-based job inventory with specific task statements developed to provide a precise picture of functions performed by personnel in a specific AFS. The data collected for these task statements include percent members performing, relative time spent, TD and TE. The EPI, on the other hand, uses a knowledge-based inventory with questions developed to provide an objective measurement of electronics knowledge required to perform an electronics-oriented job. Training managers can use EPI data in conjunction with OSR data to determine precisely what specialists do and what electronic principles they use on the job.

Twenty-nine 5- and 7-skill level personnel in the AFSC 321X1E career ladder shred completed the EPI between January 1982 and August 1983. A comprehensive EPI Report for those AFSCs taught at Lowry AFB was published in April 1984. Copies are available upon request to the USAF Occupational Measurement Center, Attn: Chief, Occupational Analysis Division (OMY), Randolph AFB TX 78150-5000.

In the EPI survey, AFSC 321X1E personnel used the electronic principles included in the inventory a moderate amount compared to other AFSCs. Table 20 lists those Electronics areas where 50 percent or more of E-shred personnel responded "yes" to performing. This data, as well as the complete data package for Lowry AFSCs, can be extremely useful to subject-matter experts when evaluating those portions of the STS and POI concerning electronic fundamentals or principles.

AFS 321X1G Training Issues

A. AFSC 321X1G First-Enlistment Personnel. The 91 AFSC 321X1G personnel in their first enlistment account for 51 percent of the total G-shred sample. They perform a primarily technical job, with 58 percent of their total job time spent performing flightline maintenance on ASG-15 DFCS. Specifically, they perform tasks such as removing or replacing turret cowlings, .50 caliber M-3 guns, and ammunition chutes on ASG-15 DFCS; and performing preflight inspections on ASG-15 DFCS. As would be expected, the vast majority of first-termers in this shred are grouped under the Flightline Personnel job group discussed in the SPECIALTY JOBS section. This group performs an average of 112 tasks, some of which are listed in Table 21.

B. AFSC 321X1G Equipment. Like their E-shred counterparts, AFSC 321X1G personnel utilize many different types of equipment in their job. Survey data can point out which equipment is used most and by what group. This information can then be used by training specialists to determine which types of equipment should be emphasized for first-term training. Like the E-shred, this shred also shows an increase in equipment utilization for second-term personnel over the first-termers in much of the equipment. The expected decrease in equipment usage due to personnel moving into more supervisory and administration functions as experience increases is also clearly seen. Even

TABLE 20

ELECTRONIC PRINCIPLES USED BY FIFTY PERCENT OR MORE OF AFSC 321X1E PERSONNEL

MATHEMATICS

DIRECT CURRENT

RESISTANCE AND RESISTIVE CIRCUITS

METERS/MULTIMETERS

ALTERNATING CURRENT

CAPACITORS

TRANSFORMERS

SOLDERING OR SOLDERLESS CONNECTIONS

RELAYS

OSCILLOSCOPES

SEMICONDUCTOR DIODES

SOLID-STATE SPECIAL PURPOSE DEVICES

POWER SUPPLIES

ELECTRON TUBES

ELECTRON TUBE AMPLIFIERS AND CIRCUITS

SPECIAL PURPOSE ELECTRON TUBES

HETERODYNING AND MODULATION-DEMODULATION (MODEMS)

TIMING CIRCUITS

USE OF SIGNAL GENERATORS

MOTORS AND GENERATORS

METER MOVEMENTS

WAVESHAPING CIRCUITS

ANTENNAS

WAVEGUIDES AND CAVITY RESONATORS

MICROWAVE AMPLIFIERS AND OSCILLATORS

TABLE 21

REPRESENTATIVE TASKS PERFORMED BY FIRST-ENLISTMENT
(1-48 MONTHS TAFMS) AFSC 321X1G PERSONNEL

TASKS		PERCENT PERFORMING (N=91)
I355	REMOVE OR REPLACE TURRET COWLINGS ON ASG-15 DFCS	92
E148	ORDER PARTS BY TELEPHONE	90
I315	REMOVE OR REPLACE AMMUNITION CHUTES ON ASG-15 DFCS	90
I311	REMOVE OR REPLACE .50 CALIBER M-3 GUN HEATERS ON ASG-15 DFCS	90
I312	REMOVE OR REPLACE .50 CALIBER M-3 GUNS ON ASG-15 DFCS	89
I314	REMOVE OR REPLACE AMMUNITION BOOSTERS ON ASG-15 DFCS	89
I296	PERFORM PREFLIGHT INSPECTIONS ON ASG-15 DFCS	88
I349	REMOVE OR REPLACE SHOCK MOUNTS ON ASG-15 DFCS	88
I297	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS ARMAMENT SYSTEM HYDRAULICS	88
I284	PERFORM AMMUNITION ARMING PROCEDURES ON ASG-15 DFCS	87
F190	TROUBLESHOOT MALFUNCTIONS INVOLVING DIRECT CURRENT CIRCUITS	87
F180	REMOVE, REPLACE, OR SPLICE ELECTRICAL WIRING	87
I330	REMOVE OR REPLACE INTEGRATING GYROS ON ASG-15 DFCS	87
I348	REMOVE OR REPLACE SERVO CENTRALS ON ASG-15 DFCS	86
F189	TROUBLESHOOT MALFUNCTIONS INVOLVING ALTERNATING CURRENT CIRCUITS	86
I285	PERFORM AMMUNITION DEARMING PROCEDURES ON ASG-15 DFCS	86
I295	PERFORM PHASE III INSPECTIONS ON ASG-15 DFCS	86
I294	PERFORM PHASE II INSPECTIONS ON ASG-15 DFCS	86
I325	REMOVE OR REPLACE CONTROL HANDLES ON ASG-15 DFCS	86
I305	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS TRACK RADAR SYSTEM POWER SUPPLIES	86
F179	REMOVE OR REPLACE CHEMICAL DRYER CARTRIDGES	85
I322	REMOVE OR REPLACE COMPUTER CENTRALS ON ASG-15 DFCS	85
I298	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS ARMAMENT SYSTEM PNEUMATICS	85
F188	TROUBLESHOOT MALFUNCTIONS IN PRESSURIZATION SYSTEMS	85
I293	PERFORM PHASE I INSPECTIONS ON ASG-15 DFCS	85
I365	TROUBLESHOOT MALFUNCTIONS IN RADAR TRACK RADAR RANGE MODE ON ASG-15 DFCS	85
I346	REMOVE OR REPLACE SEARCH PULSE SWEEP GENERATORS (PSG) ON ASG-15 DFCS	85
I363	TROUBLESHOOT MALFUNCTIONS IN ON MODE ON ASG-15 DFCS	85
I288	PERFORM FAST OPERATIONAL CHECKOUTS ON ASG-15 DFCS	84
I369	TROUBLESHOOT MALFUNCTIONS IN SYSTEM OPERATION ON ASG-15 DFCS	84
I344	REMOVE OR REPLACE SEARCH ANTENNAS ON ASG-15 DFCS	84
I335	REMOVE OR REPLACE MODULATORS ON ASG-15 DFCS	84
I364	TROUBLESHOOT MALFUNCTIONS IN PNEUMATIC SYSTEMS ON ASG-15 DFCS	84
I353	REMOVE OR REPLACE TRACK FREQUENCY CONVERTER TRANSMITTERS ON ASG-15 DFCS	84
I300	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS SEARCH RADAR SYSTEM POWER SUPPLIES	84

though there is a decrease, however, senior personnel still use the equipment a great deal. Equipment used by 50 percent or more of first-termers and their utilization over time are listed in Table 22. A complete listing is presented in the Training Extract to this report which is supplied to all training and utilization personnel.

C. AFSC 321X1G Specialty Training Standard. As with the E-shred STS, survey data were compared with sections of the AFSC 321X1G STS, dated February 1981 (with changes 1, 2, 3, and 4). Again, because survey data deal with task performance, general information or knowledge items were not evaluated. The Supervision and Training paragraph was also not evaluated due to the survey data's emphasis on first-enlistment training. Survey data support all performance items in the STS. Like the E-shred STS, however, several items, while performed by high numbers of first-termers, are not coded at the 3-skill level. Table 23 lists some of these items along with representative tasks. Subject-matter experts should examine these tasks to determine if they should be inserted in structured training. In addition, as for the E-shred STS, subject-matter experts will need to determine what changes need to be made to the document to meet the new standard for detail set up in AFR 8-13. Certain items, such as 14B, Remove and Replace Components, may need to be changed to make them more specific. Survey data will be especially useful in ascertaining areas that may need to be changed.

There were several tasks with high percent members performing not matched to the G-shred STS. Subject-matter experts should consider including STS items dealing with those tasks. These tasks and their corresponding data are in Table 24.

D. AFSC 321X1G Plan of Instruction. Course GABR32131G deals with many of the same topics as the E-shred course, except that it is specific to the ASG-15 DFCS. This POI is well supported by survey data. All matched performance objectives had high levels of first-termer percent members performing. Nevertheless, training specialists should carefully examine the survey data to determine areas of possible improvement. Several tasks were not referenced to any section of the POI and should be considered for inclusion in the basic course due to high percent members performing. Many of these tasks deal with removing or replacing various components on ASG-15 DFCS. Some of these components include .50 caliber M-3 guns, hydraulic pumps, track frequency converter transmitters, and limiting assemblies. These and other examples of unreferenced tasks are listed in Table 25.

E. AFSC 321X1G Electronic Principles. Like E-shred personnel, AFSC 321X1G personnel deal with electronics. The Electronic Principles Inventory (EPI) can thus be a source of information for subject-matter experts in evaluating those portions of the STS and POI dealing with electronic fundamentals or principles. A description of the EPI is given in the AFSC 321X1E Training Issues section. Fifty-four 5- and 7-skill level personnel in the G-shred completed the EPI. Results indicate that both shreds deal with approximately the same amount of electronics as compared to other AFSCs. It is interesting to note, however, that many electronic principles performed by over 50 percent of G-shred personnel were performed by less than 50 percent of the E-shred.

TABLE 22

EXAMPLES OF EQUIPMENT USED BY AFSC 321X1G TAFMS GROUPS

EQUIPMENT	PERCENT MEMBERS UTILIZING		
	1-48	49-96	97+
AC/DC DIFFERENTIAL VOLTMETER	91	90	85
AMPLIFIER TEST BOX	87	84	73
AMPLIFIER TEST SET	55	68	66
ATTENUATION DEVICE	67	71	[illegible]
BARREL EROSION GAUGE	63	77	70
BREAK-OUT PANEL KIT	78	87	82
CRYSTAL CURRENT METER	95	100	90
DIGITAL VOLTMETER (DVM)	97	100	91
ECHO BOX	73	58	70
FREQUENCY COUNTER	69	81	79
GRADIENT TESTER	92	100	90
HEADSPACE GAUGE	81	90	79
HYDRAULIC REPLENISHING RIG	95	100	88
MULTIMETER	98	100	91
OSCILLOSCOPE	93	97	90
POWER SUPPLY	59	61	43
PRESSURIZATION TEST SET	63	65	57
RADAR TEST SET	82	87	85
TORQUE WRENCH	82	87	84
TUBE TESTER	52	58	64
VACUUM TUBE VOLTMETER (VTVM)	77	87	85

TABLE 23

EXAMPLES OF AFSC 321X1G STS ITEMS WITH HIGH FIRST-ENLISTMENT PERCENT PERFORMING BUT NOT CODED AT THE 3-SKILL LEVEL

STS REFERENCE/TASKS		1ST ENL (N=91)	5-SKILL LEVEL (N=80)	7-SKILL LEVEL (N=49)	321X1G TRNG EMPH*	321X1G TASK DIFF**
14B	REMOVE AND REPLACE COMPONENTS - 3b 4c					
I312	REMOVE OR REPLACE .50 CALIBER M-3 GUNS ON ASG-15 DFCS	89%	89%	55%	5.02	4.65
I329	REMOVE OR REPLACE HYDRAULIC PUMPS ON ASG-15 DFCS	75%	81%	47%	4.93	6.95
I353	REMOVE OR REPLACE TRACK FREQUENCY CONVERTER TRANSMITTERS ON ASG-15 DFCS	84%	84%	49%	4.57	5.24
15A(1)(K)	PERFORM BENCH CHECKS AND ADJUSTMENTS ON COMPRESSOR - 3c 4c					
K410	INSPECT ASG-15 COMPRESSORS	59%	69%	55%	3.09	4.60
K417	PERFORM MAINTENANCE ON ASG-15 COMPRESSORS	60%	60%	39%	2.76	4.98
16K	OPERATE AMPLIFIER TEST BOX (ASG-15 ONLY) - 3c 3c					
I371	TROUBLESHOOT MALFUNCTIONS IN TRACK RADAR TRACKING CHANNELS (LOCK-ON CIRCUITS) ON ASG-15 DFCS	79%	83%	59%	7.02	7.51
I362	TROUBLESHOOT MALFUNCTIONS IN MANUAL TRACKING MODE ON ASG-15 DFCS	81%	83%	59%	6.48	6.78
I369	TROUBLESHOOT MALFUNCTIONS IN SYSTEM OPERATION ON ASG-15 DFCS	84%	83%	59%	6.10	6.88

* Training Emphasis has an average of 1.79 and a standard deviation of 1.96
** Task Difficulty has an average of 5.00 and a standard deviation of 1.00

TABLE 24

EXAMPLES OF TASKS NOT REFERENCED TO AFSC 321X1G STS

TASKS		1ST ENL	5-SKILL LEVEL	7-SKILL LEVEL	321X1G TRNG EMPH*
1286	PERFORM COMPLETE OPERATIONAL CHECK-OUTS ON ASG-15 DFCS	74%	80%	55%	5.62
F189	TROUBLESHOOT MALFUNCTIONS INVOLVING ALTERNATING CURRENT CIRCUITS	86%	90%	74%	5.24
F170	OPERATE NONPOWERED AEROSPACE GROUND EQUIPMENT	71%	76%	69%	3.93
E148	ORDER PARTS BY TELEPHONE	90%	91%	67%	3.67
F166	DRIVE VEHICLES FOR DFCS MAINTENANCE SUPPORT	46%	70%	61%	3.02
F171	PERFORM ACCEPTANCE CHECK INSPECTIONS	37%	56%	53%	2.93
F204	UPDATE JOB CONTROL ESTIMATED TIME IN COMMISSION (ETIC) OF MAINTENANCE JOBS	48%	65%	67%	2.36
E146	MAINTAIN TECHNICAL ORDER (TO) FILES	12%	18%	29%	1.91
J384	PERFORM IN-SHOP MAINTENANCE ON ASG-15 LOS INDICATORS	11%	29%	29%	1.45

* Training Emphasis has an average of 1.79 and a standard deviation of 1.96

TABLE 25

EXAMPLES OF TASKS NOT REFERENCED TO POI G3ABR32131G WITH 30 PERCENT OR MORE FIRST-TERMERS PERFORMING

TASKS		321X1G 1ST ENL PERCENT PERFORMING (N=91)	321X1G TRNG EMPH*	321X1G TASK DIFF**
F203	TROUBLESHOOT SYSTEM MALFUNCTIONS IN WIRING, OTHER THAN THAT IN LRU	81%	6.17	6.67
I286	PERFORM COMPLETE OPERATIONAL CHECKOUTS ON ASG-15 DFCS	74%	5.62	6.07
F190	TROUBLESHOOT MALFUNCTIONS INVOLVING DIRECT CURRENT CIRCUITS	87%	5.38	5.50
I360	TROUBLESHOOT MALFUNCTIONS IN IN-LIMITS MODE ON ASG-15 DFCS	80%	5.29	6.90
F189	TROUBLESHOOT MALFUNCTIONS INVOLVING ALTERNATING CURRENT CIRCUITS	86%	5.24	5.64
F180	REMOVE, REPLACE, OR SPLICE ELECTRICAL WIRING	87%	5.19	4.32
F173	PERFORM MAINTENANCE ON ELECTRICAL CONNECTORS	82%	5.12	5.23
F172	PERFORM MAINTENANCE ON CABLES	74%	5.02	5.05
I312	REMOVE OR REPLACE .50 CALIBER M-3 GUNS ON ASG-15 DFCS	89%	5.02	4.65
I329	REMOVE OR REPLACE HYDRAULIC PUMPS ON ASG-15 DFCS	75%	4.93	6.88
E153	POST ENTRIES ON MAINTENANCE DATA COLLECTION FORMS	41%	4.67	3.79
I353	REMOVE OR REPLACE TRACK FREQUENCY CONVERTER TRANSMITTERS ON ASG-15 DFCS	84%	4.57	5.24
F181	REPAIR MULTI-PIN ASSEMBLIES	79%	4.55	5.17
I332	REMOVE OR REPLACE LIMITING ASSEMBLIES ON ASG-15 DFCS	67%	4.48	5.58

* Training Emphasis has an average of 1.79 and a standard deviation of 1.96
** Task Difficulty has an average of 5.00 and a standard deviation of 1.00

These and other electronic principles performed by 50 percent or more of G-shred 5-skill level personnel are listed in Table 26.

JOB SATISFACTION ANALYSIS

An examination of the job satisfaction indicators of each experience group provides some understanding of factors which may affect the job performance of airmen in the AFSC 321X1E/G career ladder. Job satisfaction indicators for TAFMS groups are shown in Table 27, together with those of a comparative sample of similar career ladders surveyed in 1985. This gives a relative measure of how the job satisfaction of personnel in AFSC 321X1E/G compares with other similar career ladders in the Air Force. Job satisfaction across specialty jobs will also be examined to determine how overall job satisfaction may be influenced by the specific job performed.

Five attitude questions covering job interest, perceived utilization of talents, perceived utilization of training, sense of accomplishment from the job, and reenlistment intentions provide indications of job satisfaction. Both shreds had fairly high positive responses over most attitude questions. Note that, for the most part, AFSC 321X1E/G personnel reflected higher positive responses than the comparative sample. This was especially true of G-shred responses. Ninety-one percent of first-termers in each shred, for example, felt they utilized their training fairly well to perfectly, which compares to 83 percent for first-termers in the comparative sample. Reenlistment intentions, however, was one area the comparative sample usually had a higher positive response percentage than the AFSC 321X1E/G career ladder. For example, E-shred first- and second-enlistment personnel, respectively, only had 48 percent and 54 percent responded they would or probably would reenlist. This compares to a comparative sample positive response of 57 percent for first-enlistment personnel and 73 percent for second-enlistment personnel.

A comparison of job satisfaction indicators between the shreds generally shows G-shred personnel having higher percentages of positive responses than their E-shred counterparts (see Table 27). The most notable exceptions to this rule were E-shred personnel with 49-96 months TAFMS who had a higher expressed job interest than those G-shred personnel. The G- and E-shred clusters identified in the 1979 survey also indicated G-shred personnel exhibiting higher positive response percentages than E-shred personnel across all five attitude questions.

Table 28 presents data from the job satisfaction indicators by specialty job. An examination of job satisfaction indicators among specialty jobs in the G-shred shows a fairly high percentage of positive responses across all jobs, with Shop Personnel exhibiting the lowest percentages of positive responses. While 67 percent of this group found their job interesting and talents utilized fairly well to perfectly, 67 percent also stated they would not or probably would not reenlist. Among E-shred personnel, Flightline

TABLE 26

ELECTRONIC PRINCIPLES USED BY FIFTY PERCENT
OR MORE OF AFSC 321X1G PERSONNEL

MATHEMATICS

DIRECT CURRENT

RESISTANCE AND RESISTIVE CIRCUITS

METERS/MULTIMETERS

ALTERNATING CURRENT

INDUCTORS*

CAPACITORS

TRANSFORMERS

MAGNETISM*

FILTERS*

SOLDERING OR SOLDERLESS CONNECTIONS

RELAYS

OSCILLOSCOPES

SEMICONDUCTOR DIODES

TRANSISTORS*

POWER SUPPLIES

OSCILLATORS*

MULTIVIBRATORS*

ELECTRON TUBES

ELECTRON TUBE AMPLIFIERS AND CIRCUITS

SPECIAL PURPOSE ELECTRON TUBES

HETERODYNING AND MODULATION-DEMODULATION (MODEMS)

TIMING CIRCUITS

USE OF SIGNAL GENERATORS

MOTORS AND GENERATORS

METER MOVEMENTS

SATURABLE REACTORS AND MAGNETIC AMPLIFIERS*

WAVESHAPING CIRCUITS

PULSE MODULATION SYSTEMS*

ANTENNAS

WAVEGUIDES AND CAVITY RESONATORS

MICROWAVE AMPLIFIERS AND OSCILLATORS

DB AND POWER RATIOS

* Performed by under 50 percent of AFSC 32151E personnel

TABLE 27

COMPARISON OF TAFMS GROUP JOB SATISFACTION INDICATORS
(PERCENT MEMBERS RESPONDING)*

	1-48 MOS TAFMS			49-96 MOS TAFMS			97+ MOS TAFMS		
	AFSC 321X1E (N=23)	AFSC 321X1G (N=91)	COMP SAMPLE (N=2,321)	AFSC 321X1E (N=13)	AFSC 321X1G (N=31)	COMP SAMPLE (N=1,118)	AFSC 321X1E (N=32)	AFSC 321X1G (N=67)	COMP SAMPLE (N=1,593)
EXPRESSED JOB INTEREST:									
INTERESTING	65	76	61	77	68	66	72	75	74
SO-SO	30	14	22	23	23	19	19	19	14
DULL	4	9	16	0	7	12	9	5	11
PERCEIVED USE OF TALENTS:									
FAIRLY WELL TO PERFECTLY	74	84	72	69	90	78	88	88	80
LITTLE OR NOT AT ALL	26	13	28	31	7	22	12	10	19
PERCEIVED USE OF TRAINING:									
FAIRLY WELL TO PERFECTLY	91	91	83	85	100	82	88	96	80
LITTLE OR NOT AT ALL	9	9	16	15	0	18	12	4	20
SENSE OF ACCOMPLISHMENT FROM WORK:									
SATISFIED	74	73	65	62	81	67	63	60	67
NEUTRAL	13	17	15	8	3	11	12	10	10
DISSATISFIED	13	11	19	31	16	20	25	30	22
REENLISTMENT INTENTIONS:									
WILL/PROBABLY WILL REENLIST	46	58	57	54	71	73	69	72	74
WILL NOT/PROBABLY WILL NOT REENLIST	52	42	40	39	29	25	19	13	10
WILL RETIRE	0	0	**	8	0	**	9	15	15

* Numbers may not add up to 100 percent due to nonresponse and rounding
** Less than 1 percent

TABLE 28

JOB SATISFACTION INDICATORS BY SPECIALTY GROUP
(PERCENT MEMBERS RESPONDING)*

	B-52G DFC PERS CLUSTER (N=158)	JOB TYPE			
		FIRST-LINE SUPV (N=21)	FLIGHTLINE PERS (N=118)	G-SHRED INSTR (N=8)	SHOP PERS (N=6)
EXPRESSED JOB INTEREST:					
INTERESTING	77	91	74	88	67
SO-SO	15	10	15	13	33
DULL	7	0	9	0	0
PERCEIVED USE OF TALENTS:					
FAIRLY WELL TO PERFECTLY	86	95	86	100	67
LITTLE OR NOT AT ALL	11	5	11	0	33
PERCEIVED USE OF TRAINING:					
FAIRLY WELL TO PERFECTLY	94	100	93	100	100
LITTLE OR NOT AT ALL	6	0	7	0	0
SENSE OF ACCOMPLISHMENT FROM WORK:					
SATISFIED	71	57	73	88	50
NEUTRAL	12	5	14	0	17
DISSATISFIED	17	38	13	13	33
REENLISTMENT INTENTIONS:					
WILL/PROBABLY WILL REENLIST	66	81	64	75	33
WILL NOT/PROBABLY WILL NOT REENLIST	31	10	34	13	67
WILL RETIRE	3	10	2	13	0

* Numbers may not add up to 100 percent due to nonresponse and rounding
** Less than ½ percent

TABLE 28 (CONTINUED)

JOB SATISFACTION INDICATORS BY SPECIALTY GROUP
(PERCENT MEMBERS RESPONDING)*

	WORKCENTER SUPV IJT (N=13)	B-52H DFC PERS CLUSTER (N=55)	JOB TYPE: FIRST-LINE SUPV (N=15)	FLIGHTLINE PERS (N=31)	SHOP PERS (N=6)	E-SHRED INST (N=4)
EXPRESSED JOB INTEREST:						
INTERESTING	85	64	73	55	83	100
SO-SO	15	29	20	36	17	0
DULL	0	7	7	10	0	0
PERCEIVED USE OF TALENTS:						
FAIRLY WELL TO PERFECTLY	92	75	80	71	83	100
LITTLE OR NOT AT ALL	8	26	20	29	17	0
PERCEIVED USE OF TRAINING:						
FAIRLY WELL TO PERFECTLY	85	86	80	87	100	100
LITTLE OR NOT AT ALL	15	15	20	13	0	0
SENSE OF ACCOMPLISHMENT FROM WORK:						
SATISFIED	62	62	60	58	83	75
NEUTRAL	8	15	7	16	17	0
DISSATISFIED	31	24	33	26	0	25
REENLISTMENT INTENTIONS:						
WILL/PROBABLY WILL REENLIST	85	56	67	45	83	50
WILL NOT/PROBABLY WILL NOT REENLIST	0	36	13	52	17	50
WILL RETIRE	15	7	20	3	0	0

* Numbers may not add up to 100 percent due to nonresponse and rounding
** Less than 1 percent

Personnel exhibited the lowest positive responding percentage. Over 50 percent of Flightline Personnel responded they would not or probably would not reenlist. Workcenter Supervisors responded fairly positively to all indicators, but had a fairly high percentage of dissatisfaction concerning sense of accomplishment from the job (31 percent).

WRITE-IN COMMENTS

In addition to answering background questions and rating tasks performed, survey respondents may also write in comments or add information at the end of either the inventory or one of the task factor booklets. These write-in comments often address several different issues, such as additional equipment or tasks or personal opinions about a subject. It is helpful to consider multiple comments on an issue to identify those of possible importance.

The major write-in issue concerned strength and stamina. In the back of the TD rating booklets completed by 7-skill level personnel, respondents had the opportunity to identify those tasks they feel are difficult for the average first-termer to perform because of strength or stamina requirements. Several tasks in each shred were identified as difficult because of these requirements. The majority of these tasks involve removing or replacing specific components on one of the DFC systems. For the E-shred on the ASG-21 DFCS, those tasks identified as requiring a higher amount of strength or stamina include removing or replacing control indicators (CI), frequency converter transmitters (FCT), hydraulic power supply (HPS), and M-61 guns. For the G-shred on the ASG-15 DFCS, these tasks include removing or replacing .50 caliber M-3 guns, computer centrals, power centrals, search antennas, and servo centrals. Air Force managers interested in this issue should examine these tasks to see how they may impact on any classification or manning issues.

IMPLICATIONS

As explained in the INTRODUCTION, this survey was requested by HQ ATC/TTQL to validate and update the STS, and to validate the supporting training programs. Both shreds share a common job structure consisting of flightline personnel, shop personnel, first-line supervisors, and instructors. There was also a group of Workcenter Supervisors identified. While there was some overlap in the responsibilities of these jobs, there was also a very clear distinction in their primary duties. Therefore, even with the introduction of the Readiness Oriented Logistics System (ROLS) in the near future, this data should be of use.

Job satisfaction is one area that needs to be looked at. While personnel in both shreds found their jobs at least fairly interesting, both shreds also indicated retention rates lower than a comparative sample of other similar

career ladders. This is especially true of E-shred personnel. Most other aspects of the career ladder seem well supported by survey data. Both shreds display a normal career ladder progression, even though 7-skill level personnel still perform many technical functions. AFR 39-1 Specialty Job Descriptions appear to be descriptive of the career ladder at the various skill levels. One aspect of the career ladder that seemed deficient and in need of improvement, however, were the training documents, specifically the Specialty Training Standards (STS) for each shred.

The STS for both shreds were analyzed against a task matching provided by subject-matter experts at Lowry Technical Training Center. Based on the results of the analysis, both STSs were found deficient in certain areas. The major problems in the E-shred STS were the lack of specificity and the exclusion of items dealing with supervision and training. There were also a number of items without any proficiency codes at the 3-skill level, even though a high percentage of first-termers were performing those functions. The G-shred STS had many of the same problems. Specifically, a number of items may need proficiency codes at the 3-skill level because of high percent members performing. The STS will also need to be examined to make it more specific because of changes in regulations. Subject-matter experts will find this survey data useful in making the needed changes and improvements to the STSs.

APPENDIX A

REPRESENTATIVE TASKS AND BACKGROUND INFORMATION FOR GROUPS MENTIONED IN JOB STRUCTURE ANALYSIS SECTION

TABLE A1

GROUP ID NUMBER AND TITLE: GRP009, B-52G DEFENSIVE FIRE CONTROL PERSONNEL
GROUP SIZE: 158 PERCENT OF SAMPLE: 64%
AVERAGE TAFMS: 64 MONTHS AVERAGE TICF: 57 MONTHS
DAFSC: 32131G 31%
32151G 48%
32171G 21%

THE FOLLOWING ARE IN DESCENDING ORDER BY PERCENT MEMBERS PERFORMING:

TASKS		PERCENT MEMBERS PERFORMING
E148	ORDER PARTS BY TELEPHONE	91
F190	TROUBLESHOOT MALFUNCTIONS INVOLVING DIRECT CURRENT CIRCUITS	91
1355	REMOVE OR REPLACE TURRET COWLINGS ON ASG-15 DFCS	90
F189	TROUBLESHOOT MALFUNCTIONS INVOLVING ALTERNATING CURRENT CIRCUITS	90
1311	REMOVE OR REPLACE .50 CALIBER M-3 GUN HEATERS ON ASG-15 DFCS	90
1312	REMOVE OR REPLACE .50 CALIBER M-3 GUNS ON ASG-15 DFCS	89
1297	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS ARMAMENT SYSTEM HYDRAULICS	89
1315	REMOVE OR REPLACE AMMUNITION CHUTES ON ASG-15 DFCS	89
F180	REMOVE, REPLACE, OR SPLICE ELECTRICAL WIRING	89
1305	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS TRACK RADAR SYSTEM POWER SUPPLIES	89
F188	TROUBLESHOOT MALFUNCTIONS IN PRESSURIZATION SYSTEMS	88
1314	REMOVE OR REPLACE AMMUNITION BOOSTERS ON ASG-15 DFCS	88
1300	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS SEARCH RADAR SYSTEM POWER SUPPLIES	87
F173	PERFORM MAINTENANCE ON ELECTRICAL CONNECTORS	87
1296	PERFORM PREFLIGHT INSPECTIONS ON ASG-15 DFCS	87
1288	PERFORM FAST OPERATIONAL CHECKOUTS ON ASG-15 DFCS	87
F203	TROUBLESHOOT SYSTEM MALFUNCTIONS IN WIRING, OTHER THAN THAT IN LRU	87
1284	PERFORM AMMUNITION ARMING PROCEDURES ON ASG-15 DFCS	87
1299	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS ARMAMENT SYSTEM CENTRALS AND COMPONENTS	87
1301	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS SEARCH RADAR SYSTEM MODULATORS	87
1303	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS SEARCH RADAR SYSTEM PULSE SWEEP GENERATORS	87
1302	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS SEARCH RADAR SYSTEM FREQUENCY CONVERTER-TRANSMITTERS	87
F186	TROUBLESHOOT MALFUNCTIONS IN HYDRAULIC SYSTEMS	87
1298	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS ARMAMENT SYSTEM PNEUMATICS	86

TABLE A2

GROUP ID NUMBER AND TITLE: GRP038, ASG-15 DFCS FIRST-LINE SUPERVISORS
GROUP SIZE: 21 AVERAGE TAFMS: 135 MONTHS
DAFSC: 32131G 0% AVERAGE TICF: 123 MONTHS
32151G 33%
32171G 67%

THE FOLLOWING ARE IN DESCENDING ORDER BY PERCENT MEMBERS PERFORMING:

TASKS		PERCENT MEMBERS PERFORMING
F189	TROUBLESHOOT MALFUNCTIONS INVOLVING ALTERNATING CURRENT CIRCUITS	100
F190	TROUBLESHOOT MALFUNCTIONS INVOLVING DIRECT CURRENT CIRCUITS	100
F203	TROUBLESHOOT SYSTEM MALFUNCTIONS IN WIRING, OTHER THAN THAT IN LRU	100
F177	PERFORM SOLDERING OR DESOLDERING ON LINE REPLACEABLE UNITS (LRU) OR ASSOCIATED SYSTEMS WIRING	100
F173	PERFORM MAINTENANCE ON ELECTRICAL CONNECTORS	100
F180	REMOVE, REPLACE, OR SPLICE ELECTRICAL WIRING	100
F186	TROUBLESHOOT MALFUNCTIONS IN HYDRAULIC SYSTEMS	100
J402	PERFORM IN-SHOP MAINTENANCE ON ASG-15 TRACK FREQUENCY CONVERTER TRANSMITTERS	95
J385	PERFORM IN-SHOP MAINTENANCE ON ASG-15 MODULATORS	95
E153	POST ENTRIES ON MAINTENANCE DATA COLLECTION FORMS	95
F200	TROUBLESHOOT MALFUNCTIONS TO DEFECTIVE RELAYS	95
J398	PERFORM IN-SHOP MAINTENANCE ON ASG-15 TARGET POSITION COMPUTERS (TPC)	95
J388	PERFORM IN-SHOP MAINTENANCE ON ASG-15 PULSE SWEEP GENERATORS (PSG)	95
J390	PERFORM IN-SHOP MAINTENANCE ON ASG-15 RADAR POWER SUPPLIES	95
E133	COMPLETE STATUS TAGS FOR CONDITION OF PROPERTY	95
E129	ATTACH EQUIPMENT STATUS TAGS OR LABELS	95
F172	PERFORM MAINTENANCE ON CABLES	95
F181	REPAIR MULTI-PIN CONNECTORS	95
F178	PERFORM TIME COMPLIANCE TECHNICAL ORDER (TCTO) REQUIREMENTS OR ACTIONS	95
K411	INSPECT ASG-15 DEMAND AND INTERMEDIATE AMMUNITION BOOSTERS	95
J395	PERFORM IN-SHOP MAINTENANCE ON ASG-15 SERVO CENTRALS	90
J378	PERFORM IN-SHOP MAINTENANCE ON ASG-15 COMPUTER CENTRALS	90
J404	PERFORM MAINTENANCE ON FLYAWAY TEST BENCHES	90
J392	PERFORM IN-SHOP MAINTENANCE ON ASG-15 RADAR INDICATORS	90
A7	ESTABLISH WORK PRIORITIES	90
1347	REMOVE OR REPLACE SERVO CENTRAL SUBASSEMBLIES ON ASG-15 DFCS	67

TABLE A3

GROUP ID NUMBER AND TITLE: GRP040, ASG-15 DFCS FLIGHTLINE PERSONNEL
GROUP SIZE: 118 AVERAGE TAFMS: 52 MONTHS
DAFSC: 32131G 36% AVERAGE TICF: 46 MONTHS
32151G 53%
32171G 12%

THE FOLLOWING ARE IN DESCENDING ORDER BY PERCENT MEMBERS PERFORMING:

TASKS		PERCENT MEMBERS PERFORMING
I355	REMOVE OR REPLACE TURRET COWLINGS ON ASG-15 DFCS	100
I349	REMOVE OR REPLACE SHOCK MOUNTS ON ASG-15 DFCS	100
I325	REMOVE OR REPLACE CONTROL HANDLES ON ASG-15 DFCS	100
I369	TROUBLESHOOT MALFUNCTIONS IN SYSTEM OPERATION ON ASG-15 DFCS	99
I348	REMOVE OR REPLACE SERVO CENTRALS ON ASG-15 DFCS	99
I312	REMOVE OR REPLACE .50 CALIBER M-3 GUNS ON ASG-15 DFCS	99
I322	REMOVE OR REPLACE COMPUTER CENTRALS ON ASG-15 DFCS	99
I297	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS ARMAMENT SYSTEM HYDRAULICS	99
I365	TROUBLESHOOT MALFUNCTIONS IN RADAR TRACK RADAR RANGE MODE ON ASG-15 DFCS	99
I364	TROUBLESHOOT MALFUNCTIONS IN PNEUMATIC SYSTEMS ON ASG-15 DFCS	99
I315	REMOVE OR REPLACE AMMUNITION CHUTES ON ASG-15 DFCS	99
I330	REMOVE OR REPLACE INTEGRATING GYROS ON ASG-15 DFCS	99
I305	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS TRACK RADAR SYSTEM POWER SUPPLIES	99
I358	TROUBLESHOOT MALFUNCTIONS IN EMERGENCY MODE ON ASG-15 DFCS	99
I363	TROUBLESHOOT MALFUNCTIONS IN ON MODE ON ASG-15 DFCS	99
I346	REMOVE OR REPLACE SEARCH PULSE SWEEP GENERATORS (PSG) ON ASG-15 DFCS	99
I340	REMOVE OR REPLACE RADAR INDICATORS ON ASG-15 DFCS	99
I311	REMOVE OR REPLACE .50 CALIBER M-3 GUN HEATERS ON ASG-15 DFCS	99
I296	PERFORM PREFLIGHT INSPECTIONS ON ASG-15 DFCS	98
I370	TROUBLESHOOT MALFUNCTIONS IN TRACK RADAR OPERATION ON ASG-15 DFCS	98
F190	TROUBLESHOOT MALFUNCTIONS INVOLVING DIRECT CURRENT CIRCUITS	98
I335	REMOVE OR REPLACE MODULATORS ON ASG-15 DFCS	98
F188	TROUBLESHOOT MALFUNCTIONS IN PRESSURIZATION SYSTEMS	98
I347	REMOVE OR REPLACE SERVO CENTRAL SUBASSEMBLIES ON ASG-15 DFCS	98
I353	REMOVE OR REPLACE TRACK FREQUENCY CONVERTER TRANSMITTERS ON ASG-15 DFCS	98

TABLE A4

GROUP ID NUMBER AND TITLE: GRP036, ASG-15 DFCS INSTRUCTORS
GROUP SIZE: 8 AVERAGE TAFMS: 104 MONTHS
DAFSC: 32131G 0% AVERAGE TICF: 98 MONTHS
32151G 50%
32171G 50%

THE FOLLOWING ARE IN DESCENDING ORDER BY PERCENT MEMBERS PERFORMING:

TASKS		PERCENT MEMBERS PERFORMING
B54	INTERPRET TO WIRING OR CIRCUIT DIAGRAMS FOR SUBORDINATES	100
D106	DEMONSTRATE HOW TO LOCATE TECHNICAL INFORMATION	100
I303	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS SEARCH RADAR SYSTEMS PULSE SWEEP GENERATORS	100
I309	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS TRACK RADAR SYSTEM TARGET POSITION COMPUTERS	100
I310	PERFORM TRACKING CHANNELS (LOCK-ON) CHECKS AND ADJUSTMENTS ON ASG-15 DFCS	100
I288	PERFORM FAST OPERATIONAL CHECKOUTS ON ASG-15 DFCS	100
I304	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS SEARCH RADAR SYSTEM RADAR INDICATORS	100
I308	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS TRACK RADAR SYSTEM FREQUENCY CONVERTER-TRANSMITTERS	100
I299	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS ARMAMENT SYSTEM CENTRALS AND COMPONENTS	100
I302	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS SEARCH RADAR SYSTEM FREQUENCY CONVERTER-TRANSMITTERS	100
I307	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS TRACK RADAR SYSTEM MODULATORS	100
D100	ADMINISTER TESTS	100
I300	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS SEARCH RADAR SYSTEM POWER SUPPLIES	100
I301	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS SEARCH RADAR SYSTEM MODULATORS	100
I305	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS TRACK RADAR SYSTEM POWER SUPPLIES	100
I306	PERFORM SYSTEM CHECKS AND ADJUSTMENTS N ASG-15 DFCS TRACK RADAR SYSTEM VOLTAGE REGULATORS	100
D105	COUNSEL TRAINEES ON TRAINING PROGRESS	100
D122	SCORE TESTS	100
B53	INTERPRET POLICIES, DIRECTIVES, OR PROCEDURES FOR SUBORDINATES	88
I287	PERFORM ELECTRONIC COUNTERMEASURE (ECM) BLANKING CHECKS ON ASG-15 DFCS	88
I297	PERFORM SYSTEM CHECKS AND ADJUSTMENTS ON ASG-15 DFCS ARMAMENT SYSTEM HYDRAULICS	88
D127	WRITE TEST QUESTIONS	88

TABLE A5

GROUP ID NUMBER AND TITLE: GRP030, ASG-15 DFCS FIELD SHOP PERSONNEL
GROUP SIZE: 6 AVERAGE TAFMS: 35 MONTHS
DAFSC: 32131G 33% AVERAGE TICF: 31 MONTHS
32151G 50%
32171G 17%

THE FOLLOWING ARE IN DESCENDING ORDER BY PERCENT MEMBERS PERFORMING:

TASKS		PERCENT MEMBERS PERFORMING
E148	ORDER PARTS BY TELEPHONE	100
J388	PERFORM IN-SHOP MAINTENANCE ON ASG-15 PULSE SWEEP GENERATORS (PSG)	100
J392	PERFORM IN-SHOP MAINTENANCE ON ASG-15 RADAR INDICATORS	100
J390	PERFORM IN-SHOP MAINTENANCE ON ASG-15 RADAR POWER SUPPLIES	100
J386	PERFORM IN-SHOP MAINTENANCE ON ASG-15 POWER CENTRALS	100
J403	PERFORM IN-SHOP MAINTENANCE ON ASG-15 TURRETS	100
J394	PERFORM IN-SHOP MAINTENANCE ON ASG-15 SEARCH FREQUENCY CONVERTER TRANSMITTERS (FCT)	100
J397	PERFORM IN-SHOP MAINTENANCE ON ASG-15 SYSTEM CONTROL PANELS	100
J385	PERFORM IN-SHOP MAINTENANCE ON ASG-15 MODULATORS	83
J402	PERFORM IN-SHOP MAINTENANCE ON ASG-15 TRACK FREQUENCY CONVERTER TRANSMITTERS	83
F189	TROUBLESHOOT MALFUNCTIONS INVOLVING ALTERNATING CURRENT CIRCUITS	83
F190	TROUBLESHOOT MALFUNCTIONS INVOLVING DIRECT CURRENT CIRCUITS	83
J379	PERFORM IN-SHOP MAINTENANCE ON ASG-15 CONTROL HANDLES	83
J395	PERFORM IN-SHOP MAINTENANCE ON ASG-15 SERVO CENTRALS	83
F177	PERFORM SOLDERING OR DESOLDERING ON LINE REPLACEABLE UNITS (LRU) OR ASSOCIATED SYSTEMS WIRING	83
J393	PERFORM IN-SHOP MAINTENANCE ON ASG-15 SEARCH ANTENNAS	83
J380	PERFORM IN-SHOP MAINTENANCE ON ASG-15 CONTROL CENTRALS	83
J404	PERFORM MAINTENANCE ON FLYAWAY TEST BENCHES	83
F203	TROUBLESHOOT SYSTEM MALFUNCTIONS IN WIRING, OTHER THAN THAT IN LRU	83
J381	PERFORM IN-SHOP MAINTENANCE ON ASG-15 DATA TAKEOFF UNITS	83
J378	PERFORM IN-SHOP MAINTENANCE ON ASG-15 COMPUTER CENTRALS	83
F172	PERFORM MAINTENANCE ON CABLES	83
J398	PERFORM IN-SHOP MAINTENANCE ON ASG-15 TARGET POSITION COMPUTERS (TPC)	83
J405	PERFORM MAINTENANCE ON SUBASSEMBLY TEST SETS	83
J400	PERFORM IN-SHOP MAINTENANCE ON ASG-15 TRACK ANTENNAS	83
J391	PERFORM IN-SHOP MAINTENANCE ON ASG-15 RADAR CONTROL PANELS	83
F180	REMOVE, REPLACE, OR SPLICE ELECTRICAL WIRING	83
F200	TROUBLESHOOT MALFUNCTIONS TO DEFECTIVE RELAYS	83
F201	TROUBLESHOOT MALFUNCTIONS TO DEFECTIVE TRANSFORMERS	83

TABLE A6

GROUP ID NUMBER AND TITLE: GRP026, WORKCENTER SUPERVISORS
GROUP SIZE: 13 PERCENT OF SAMPLE: 5%
AVERAGE TAFMS: 186 MONTHS AVERAGE TICF: 177 MONTHS
DAFSC: 32131 0% SHRED: E-SHRED 38%
32151 8% G-SHRED 62%
32171 92%

THE FOLLOWING ARE IN DESCENDING ORDER BY PERCENT MEMBERS PERFORMING:

TASK		PERCENT MEMBERS PERFORMING
B53	INTERPRET POLICIES, DIRECTIVES, OR PROCEDURES FOR SUBORDINATES	100
B20	BRIEF PERSONNEL, OTHER THAN AIRCREWS	100
C71	EVALUATE COMPLETED MAINTENANCE ACTIONS	92
C74	EVALUATE MAINTENANCE OF EQUIPMENT	92
C94	REVIEW INSPECTION REPORTS	92
D111	EVALUATE ON-THE-JOB TRAINEE PROGRESS	92
C93	REVIEW INSPECTION PROCEDURES	92
C97	WRITE APR	92
B27	DEVELOP STATUS BOARDS, GRAPHS, OR CHARTS	92
C92	REVIEW CHARTS OR GRAPHS	92
B25	DEVELOP OR IMPROVE WORK METHODS OR PROCEDURES	92
B56	MAINTAIN STATUS BOARDS, GRAPHS, OR CHARTS	92
B57	PARTICIPATE IN STAFF MEETINGS	92
C72	EVALUATE COMPLIANCE WITH WORK STANDARDS	85
E130	COMPILE INSPECTION REPORTS OR RECORDS	85
D113	EVALUATE TRAINING METHODS, TECHNIQUES, OR PROGRAMS	85
B38	DRAFT CORRESPONDENCE	85
C75	EVALUATE NEWLY ASSIGNED PERSONNEL	85
B24	COUNSEL SUBORDINATES ON PERSONAL OR MILITARY-RELATED PROBLEMS	85
B54	INTERPRET TO WIRING OR CIRCUIT DIAGRAMS FOR SUBORDINATES	85
D110	ESTABLISH TRAINING REQUIREMENTS	85
A7	ESTABLISH WORK PRIORITIES	85
D106	DEMONSTRATE HOW TO LOCATE TECHNICAL INFORMATION	85
C89	INSPECT SHOP FACILITIES	85
C83	EVALUATE SUGGESTIONS	85
A15	PLAN SAFETY PROGRAMS	85
B26	DEVELOP SELF-INSPECTION CHECKLISTS	85
C78	EVALUATE REPORTED TECHNICAL ORDER (TO) DEFICIENCIES	77
A5	ESTABLISH PERFORMANCE STANDARDS	77
D117	MAINTAIN TRAINING RECORDS	77
E155	PREPARE DRAFTS OF CORRESPONDENCE	77
A4	ESTABLISH ORGANIZATIONAL POLICIES, OFFICE INSTRUCTIONS (OI), OR STANDING OPERATING PROCEDURES (SOP)	77
A13	PLAN OR PREPARE BRIEFINGS	77

TABLE A7

GROUP ID NUMBER AND TITLE: SPC027, B-52H DEFENSIVE FIRE CONTROL PERSONNEL
GROUP SIZE: 55 PERCENT OF SAMPLE: 22%
AVERAGE TAFMS: 91 MONTHS AVERAGE TICF: 70 MONTHS
DAFSC: 32131E 22%
32151E 38%
32171E 40%

THE FOLLOWING ARE IN DESCENDING ORDER BY PERCENT MEMBERS PERFORMING:

TASKS		PERCENT MEMBERS PERFORMING
E148	ORDER PARTS BY TELEPHONE	93
F190	TROUBLESHOOT MALFUNCTIONS INVOLVING DIRECT CURRENT CIRCUITS	93
F189	TROUBLESHOOT MALFUNCTIONS INVOLVING ALTERNATING CURRENT CIRCUITS	91
F167	LACE ELECTRICAL WIRING ASSEMBLIES	91
F173	PERFORM MAINTENANCE ON ELECTRICAL CONNECTORS	91
G212	PERFORM OPERATIONAL CHECKOUTS OF ASG-21 DFCS	89
G209	PERFORM HYDRAULIC SERVICING ON ASG-21 DFCS	89
F188	TROUBLESHOOT MALFUNCTIONS IN PRESSURIZATION SYSTEMS	89
F180	REMOVE, REPLACE, OR SPLICE ELECTRICAL WIRING	89
F181	REPAIR MULTI-PIN CONNECTORS	87
G219	REMOVE OR REPLACE ANTENNAS ON ASG-21 DFCS	85
G252	TROUBLESHOOT MALFUNCTIONS ON ASG-21 DFCS TO LINE REPLACEABLE UNITS (LRU) ON B-52H	85
G236	REMOVE OR REPLACE HYDRAULIC POWER SUPPLY (HPS) ON ASG-21 DFCS	85
G230	REMOVE OR REPLACE FREQUENCY CONVERTER TRANSMITTERS (FCT) ON ASG-21 DFCS	85
G222	REMOVE OR REPLACE CONTROL INDICATORS (CI) ON ASG-21 DFCS	85
G246	REMOVE OR REPLACE TRACKING CONTROL ASSEMBLY (TCA) ON ASG-21 DFCS	85
G223	REMOVE OR REPLACE CONTROLLED LINE PLATFORMS (CLP) ON ASG-21 DFCS	85
G206	DEARM M-61 GUNS ON B-52H	85
G235	REMOVE OR REPLACE GUN FEEDERS ON ASG-21 DFCS	85
G228	REMOVE OR REPLACE FIRE CONTROL SYSTEM CONTROLS (HAND CONTROL) ON ASG-21 DFCS	85
G205	ARM M-61 GUNS ON B-52H	84
G245	REMOVE OR REPLACE SYSTEM CONTROL ASSEMBLY (SCA) ON ASG-21 DFCS	84
G207	PERFORM ELECTRICAL HARMONIZATION ON ASG-21 DFCS	84
G208	PERFORM GUN BORESIGHTING ON ASG-21 DFCS	84
G244	REMOVE OR REPLACE RADOMES ON ASG-21 DFCS	82
G240	REMOVE OR REPLACE M-61 GUN ON B-52HS	82
F186	TROUBLESHOOT MALFUNCTIONS IN HYDRAULIC SYSTEMS	82
G233	REMOVE OR REPLACE GUN COVER BOOTS ON ASG-21 DFCS	82

TABLE A8

GROUP ID NUMBER AND TITLE: SPC043, ASG-21 DFCS FIRST-LINE SUPERVISORS
GROUP SIZE: 15 AVERAGE TAFMS: 149 MONTHS
DAFSC: 32131E 0% AVERAGE TICF: 122 MONTHS
32151E 13%
32171E 87%

THE FOLLOWING ARE IN DESCENDING ORDER BY PERCENT MEMBERS PERFORMING:

TASKS		PERCENT MEMBERS PERFORMING
A7	ESTABLISH WORK PRIORITIES	100
B60	SUPERVISE APPRENTICE DEFENSIVE FIRE CONTROL SYSTEM (DFCS) MECHANICS (B-52H) (ASG-21 TURRET)) (AFSC 32131E)	100
B54	INTERPRET TO WIRING OR CIRCUIT DIAGRAMS FOR SUBORDINATES	100
B64	SUPERVISE DFCS MECHANICS (B-52H (ASG-21 TURRET)) (AFSC 32151E)	100
C82	EVALUATE SERVICEABILITY OF EQUIPMENT OR SUPPLIES	100
C72	EVALUATE COMPLIANCE WITH WORK STANDARDS	100
L148	ORDER PARTS BY TELEPHONE	100
B25	DEVELOP OR IMPROVE WORK METHODS OR PROCEDURES	100
B24	COUNSEL SUBORDINATES ON PERSONAL OR MILITARY-RELATED PROBLEMS	100
D106	DEMONSTRATE HOW TO LOCATE TECHNICAL INFORMATION	100
F167	LACE ELECTRICAL WIRING ASSEMBLIES	100
H282	TROUBLESHOOT MALFUNCTIONS ON HOT MOCK-UPS	100
F173	PERFORM MAINTENANCE ON ELECTRICAL CONNECTORS	100
B53	INTERPRET POLICIES, DIRECTIVES, OR PROCEDURES FOR SUBORDINATES	100
F177	PERFORM SOLDERING OR DESOLDERING ON LINE REPLACEABLE UNITS (LRU) OR ASSOCIATED SYSTEMS WIRING	100
H254	PERFORM BUILT-IN TEST (BIT) PROCEDURES ON HOT MOCK-UPS	100
F172	PERFORM MAINTENANCE ON CABLES	100
F180	REMOVE, REPLACE, OR SPLICE ELECTRICAL WIRING	100
L160	RESEARCH SUPPLY INFORMATION FOR SPECIAL REQUISITION, ISSUE, OR TURN-IN SLIPS	100
F181	REPAIR MULTI-PIN CONNECTORS	100
F190	TROUBLESHOOT MALFUNCTIONS INVOLVING DIRECT CURRENT CIRCUITS	100
F189	TROUBLESHOOT MALFUNCTIONS INVOLVING ALTERNATING CURRENT CIRCUITS	100
F188	TROUBLESHOOT MALFUNCTIONS IN PRESSURIZATION SYSTEMS	93
H258	PERFORM IN-SHOP MAINTENANCE ON ASG-21 ANTENNAS	87
D101	CONDUCT ON-THE-JOB TRAINING (OJT)	87
H264	PERFORM IN-SHOP MAINTENANCE ON ASG-21 FREQUENCY CONVERTER TRANSMITTERS (FCT)	87
B29	DIRECT FIELD SHOP MAINTENANCE	87

TABLE A9

GROUP ID NUMBER AND TITLE: GRP037, ASG-21 DFCS FLIGHTLINE PERSONNEL
GROUP SIZE: 31 AVERAGE TAFMS: 70 MONTHS
DAFSC: 32131E 29% AVERAGE TICF: 55 MONTHS
32151E 48%
32171E 23%

THE FOLLOWING ARE IN DESCENDING ORDER BY PERCENT MEMBERS PERFORMING:

TASKS		PERCENT MEMBERS PERFORMING
G209	PERFORM HYDRAULIC SERVICING ON ASG-21 DFCS	100
G219	REMOVE OR REPLACE ANTENNAS ON ASG-21 DFCS	100
G212	PERFORM OPERATIONAL CHECKOUTS OF ASG-21 DFCS	100
G236	REMOVE OR REPLACE HYDRAULIC POWER SUPPLY (HPS) ON ASG-21 DFCS	100
G246	REMOVE OR REPLACE TRACKING CONTROL ASSEMBLY (TCA) ON ASG-21 DFCS	100
G230	REMOVE OR REPLACE FREQUENCY CONVERTER TRANSMITTERS (FCT) ON ASG-21 DFCS	100
G245	REMOVE OR REPLACE SYSTEM CONTROL ASSEMBLY (SCA) ON ASG-21 DFCS	100
G223	REMOVE OR REPLACE CONTROLLED LINE PLATFORMS (CLP) ON ASG-21 DFCS	100
G222	REMOVE OR REPLACE CONTROL INDICATORS (CI) ON ASG-21 DFCS	100
F188	TROUBLESHOOT MALFUNCTIONS IN PRESSURIZATION SYSTEMS	100
G235	REMOVE OR REPLACE GUN FEEDERS ON ASG-21 DFCS	100
G228	REMOVE OR REPLACE FIRE CONTROL SYSTEM CONTROLS (HAND CONTROL) ON ASG-21 DFCS	100
G244	REMOVE OR REPLACE RADOMES ON ASG-21 DFCS	97
G252	TROUBLESHOOT MALFUNCTIONS ON ASG-21 DFCS TO LINE REPLACEABLE UNITS (LRU) ON B-52H	97
G206	DEARM M-61 GUNS ON B-52H	97
F186	TROUBLESHOOT MALFUNCTIONS IN HYDRAULIC SYSTEMS	97
G240	REMOVE OR REPLACE M-61 GUN ON B-52HS	97
G207	PERFORM ELECTRICAL HARMONIZATION ON ASG-21 DFCS	97
G208	PERFORM GUN BORESIGHTING ON ASG-21 DFCS	97
G242	REMOVE OR REPLACE PRESSURIZATION PACKAGES ON ASG-21 DFCS	97
G233	REMOVE OR REPLACE GUN COVER BOOTS ON ASG-21 DFCS	97
F165	BRIEF OR DEBRIEF AIRCREWS	97
G220	REMOVE OR REPLACE BALLISTIC COMPUTERS (BC) ON ASG-21 DFCS	97
F173	PERFORM MAINTENANCE ON ELECTRICAL CONNECTORS	97
G213	PERFORM PHASE I INSPECTIONS ON ASG-21 DFCS	97
G215	PERFORM PHASE III INSPECTIONS ON ASG-21 DFCS	97
G249	REMOVE OR REPLACE WAVEGUIDE ASSEMBLIES ON ASG-21 DFCS	97
G234	REMOVE OR REPLACE GUN DRIVE MOTORS ON ASG-21 DFCS	97
G205	ARM M-61 GUNS ON B-52H	94

TABLE A10

GROUP ID NUMBER AND TITLE: GRP024, ASG-21 DFCS FIELD SHOP PERSONNEL
GROUP SIZE: 6 AVERAGE TAFMS: 29 MONTHS
DAFSC: 32131E 33% AVERAGE TICF: 25 MONTHS
32151E 67%
32171E 0%

THE FOLLOWING ARE IN DESCENDING ORDER BY PERCENT MEMBERS PERFORMING:

TASKS		PERCENT MEMBERS PERFORMING
H274	PERFORM OPERATIONAL ASSURANCE/FAULT ISOLATION (OAFI) TESTS ON E-831 TEST STATIONS	100
H258	PERFORM IN-SHOP MAINTENANCE ON ASG-21 ANTENNAS	100
F190	TROUBLESHOOT MALFUNCTIONS INVOLVING DIRECT CURRENT CIRCUITS	100
F189	TROUBLESHOOT MALFUNCTIONS INVOLVING ALTERNATING CURRENT CIRCUITS	100
H269	PERFORM IN-SHOP MAINTENANCE ON ASG-21 TRACKING CONTROL ASSEMBLIES (TCA)	100
H260	PERFORM IN-SHOP MAINTENANCE ON ASG-21 CONTROL LINE PLATFORMS (CLP)	100
H264	PERFORM IN-SHOP MAINTENANCE ON ASG-21 FREQUENCY CONVERTER TRANSMITTERS (FCT)	100
H270	PERFORM INSPECTIONS ON E-831 TEST STATIONS	100
H261	PERFORM IN-SHOP MAINTENANCE ON ASG-21 CONTROL INDICATORS (CI)	100
H279	TROUBLESHOOT MALFUNCTIONS ON E-831 TEST STATIONS	100
F174	PERFORM MAINTENANCE ON TEST PLUGS	100
E153	POST ENTRIES ON MAINTENANCE DATA COLLECTION FORMS	83
E148	ORDER PARTS BY TELEPHONE	83
H275	PERFORM OAFI TESTS ON E-832 TEST STATIONS	83
H276	PERFORM OAFI TESTS ON E-833 TEST STATIONS	83
H259	PERFORM IN-SHOP MAINTENANCE ON ASG-21 BALLISTIC COMPUTERS	83
H277	PERFORM SYSTEM FUNCTIONAL TESTS ON HOT MOCK-UPS	83
F172	PERFORM MAINTENANCE ON CABLES	83
F167	LACE ELECTRICAL WIRING ASSEMBLIES	83
H263	PERFORM IN-SHOP MAINTENANCE ON ASG-21 FCSC (HAND CONTROL)	83
F173	PERFORM MAINTENANCE ON ELECTRICAL CONNECTORS	83
F200	TROUBLESHOOT MALFUNCTIONS TO DEFECTIVE RELAYS	83
F180	REMOVE, REPLACE, OR SPLICE ELECTRICAL WIRING	83
H268	PERFORM IN-SHOP MAINTENANCE ON ASG-21 SYSTEM CONTROL ASSEMBLIES (SCA)	83
H282	TROUBLESHOOT MALFUNCTIONS ON HOT MOCK-UPS	83
H254	PERFORM BUILT-IN TEST (BIT) PROCEDURES ON HOT MOCK-UPS	83
H255	PERFORM FREQUENCY CONVERTER TRANSMITTER (FCT) TEST ON HOT MOCK-UPS	83
F181	REPAIR MULTI-PIN CONNECTORS	83

TABLE A11

GROUP ID NUMBER AND TITLE: GRP015, ASG-21 DFCS INSTRUCTORS
GROUP SIZE: 4 AVERAGE TAFMS: 83 MONTHS
DAFSC: 32131E 0% AVERAGE TICF: 78 MONTHS
32151E 100%
32171E 0%

THE FOLLOWING ARE IN DESCENDING ORDER BY PERCENT MEMBERS PERFORMING:

TASKS		PERCENT MEMBERS PERFORMING
D102	CONDUCT RESIDENT TECHNICAL TRAINING COURSES	100
D100	ADMINISTER TESTS	100
D106	DEMONSTRATE HOW TO LOCATE TECHNICAL INFORMATION	100
D112	EVALUATE RESIDENT TRAINEE PROGRESS	100
D122	SCORE TESTS	100
D105	COUNSEL TRAINEES ON TRAINING PROGRESS	100
C73	EVALUATE INDIVIDUALS FOR DEMOTION, PROMOTION, OR RECLASSIFICATION	75
B54	INTERPRET TO WIRING OR CIRCUIT DIAGRAMS FOR SUBORDINATES	75
B24	COUNSEL SUBORDINATES ON PERSONAL OR MILITARY-RELATED PROBLEMS	75
G212	PERFORM OPERATIONAL CHECKOUTS OF ASG-21 DFCS	75
D121	PROCURE TRAINING AIDS, SPACE, OR EQUIPMENT	75
D107	DEVELOP TECHNICAL COURSE MATERIALS	75
H255	PERFORM FREQUENCY CONVERTER TRANSMITTER (FCT) TEST ON HOT MOCK-UPS	75
H270	PERFORM INSPECTIONS ON E-831 TEST STATIONS	75
H271	PERFORM INSPECTIONS ON E-832 TEST STATIONS	75
H272	PERFORM INSPECTIONS ON E-833 TEST STATIONS	75
G207	PERFORM ELECTRICAL HARMONIZATION ON ASG-21 DFCS	75
G208	PERFORM GUN BORESIGHTING ON ASG-21 DFCS	75
H277	PERFORM SYSTEM FUNCTIONAL TESTS ON HOT MOCK-UPS	75
G216	PERFORM TURRET LIMIT CHECKS ON ASG-21 DFCS	75
H254	PERFORM BUILT-IN TEST (BIT) PROCEDURES ON HOT MOCK-UPS	75
G205	ARM M-61 GUNS ON B-52H	75
G206	DEARM M-61 GUNS ON B-52H	75
G210	PERFORM LIMITED POWER ON (LPO) CHECKS FOR IN-FLIGHT FIRING ON ASG-21 DFCS	75
H274	PERFORM OPERATIONAL ASSURANCE/FAULT ISOLATION (OAFI) TESTS ON E-831 TEST STATIONS	75
H275	PERFORM OAFI TESTS ON E-832 TEST STATIONS	75
H276	PERFORM OAFI TESTS ON E-833 TEST STATIONS	75
L423	ASSEMBLE M-61 GUNS	75
L424	DISASSEMBLE M-61 GUNS	75
L425	INSPECT M-61 GUNS	75
L433	PERFORM PERFORMANCE CHECKOUTS ON M-61 GUNS	75
D110	ESTABLISH TRAINING REQUIREMENTS	50

END

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DTIC